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NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

PHYSICAL MEASUREMENTS OF WATER PROPERTIES ACROSS THE MOUTH OF THE GULF OF CALIFORNIA DURING APRIL 2013 (PESCAR24 CRUISE)

MEDICIONES FISICAS DE LAS PROPIEDADES DEL AGUA A TRAVÉS DE LA BOCA DEL GOLFO DE CALIFORNIA DURANTE ABRIL DE 2013 (CRUCERO PESCAR24)

by

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Dirección General de Cooperación Técnica y Científica,
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14. ABSTRACT
Hydrographic data were collected in Pescadero Basin (at the entrance to the Gulf of California) and subsequently along the West Coast of Baja California and Southern and Central California on *R/V Point Sur* from 19 April to 2 May 2013. Objectives of data collection were to measure both the exchange of waters between the Pacific Ocean and Gulf if California and the variation of water properties in the California Undercurrent as it transported water along the 1000 m isobaths to the north. The purpose of this report is to provide summary listings of cruise data, a description of data collection and processing procedures, and a brief report of oceanographic conditions. Data collection included profiles of conductivity, temperature, dissolved oxygen, nutrients and ocean currents at fixed stations as well as underway observations of sea surface and atmospheric properties and ocean currents. In contrast to previous observations of cyclonic flow, a well-defined pattern of anticyclonic flow of upper waters was observed in Pescadero Basin with flow into the Gulf of California and flow into the pacific along Sinaloa.

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Contents/Contenido

List of Tables/Lista de Tablas

List of Figures/Lista de Figuras

Abstract

Hydrographic data were collected in Pescadero Basin (at the entrance to the Gulf of California) and subsequently along the West Coast of Baja California and Southern and Central California on *R/V Point Sur* from 19 April to 2 May 2013. Objectives of data collection were to measure both the exchange of waters between the Pacific Ocean and Gulf of California and the variation of water properties in the California Undercurrent as it transported water along the 1000 m isobaths to the north. The purpose of this report is to provide summary listings of cruise data, a description of data collection and processing procedures, and a brief report of oceanographic conditions. Data collection included profiles of conductivity, temperature, dissolved oxygen, nutrients and ocean currents at fixed stations as well as underway observations of sea surface and atmospheric properties and ocean currents. In contrast to previous observations of cyclonic flow, a well-defined pattern of anticyclonic flow of upper waters was observed in Pescadero Basin with flow into the Gulf along Baja California and flow into the Pacific along Sinaloa.

Resumen

Datos hidrográficos fueron colectados en la Cuenca Pescadero (en la entrada al Golfo de California) y posteriormente a lo largo de la costa oeste de la península de Baja California y la parte Sur y Central de California, en el *R/V Point Sur*, del 19 de abril al 2 de mayo de 2013. Los objetivos de la colección de datos fue medir el intercambio de las aguas entre el Océano Pacífico y el Golfo de California y la variación de las propiedades del agua en la Subcorriente de California, así como su transporte de agua a lo largo de la isóbata de 1000 m al norte. El propósito de este reporte es proporcionar un resumen de los datos del crucero, una descripción de los procedimientos de la recopilación y procesamiento de los datos, así como un breve informe de las condiciones oceanográficas. La colección de los datos incluye perfiles de conductividad, temperatura, oxígeno disuelto, nutrientes y las corrientes oceánicas en estaciones fijas, así como las observaciones en curso realizadas en la superficie del mar y las propiedades de la atmósfera y las corrientes oceánicas. En contraste con previas observaciones de flujo ciclónico en la Cuenca Pescadero, se observó un patrón de flujo anticiclónico bien definido de las aguas superiores, con un flujo entrando al Golfo a lo largo de Baja California y el flujo de salida hacia el Pacífico a lo largo de Sinaloa.

Introduction

This project began in April 1992 as a joint oceanographic study between the Universidad Autónoma de Baja California and the Naval Postgraduate School to study the ocean currents and water mass properties across the mouth of the Sea of Cortez/Gulf of California, with particular interest in determining the structure of the California Current in the area (Rago *et al.*, 1992). A unique aspect of the project was direct measurement of current using an acoustically tracked dropsonde called Pegasus (Spain *et al.*, 1981). The project was dubbed PESCAR (PEgasus in the Sea of Cortez ARea). A line of six Pegasus stations (Collins *et al.,* 1997; Garfield *et al.*, 1995) was established at the entrance to the Gulf across Pescadero Basin between Cabo Pulmo on the Baja California peninsula and El Dorado, Sinaloa, on the Mexican mainland along which (besides Pegasus) hydrographic (CTD) stations (stations 1-20, Figure 1) have been periodically occupied through the years (Spearman, 1993; Castro *et al.*, 2000; Mascarenhas *et al.*, 2004; Castro *et al.*, 2006; Collins *et al.*, 2013).

This was the 24th cruise of the project, during which three tasks were accomplished. First, the hydrographic section across Pescadero Basin was occupied by twenty CTD casts to near the sea floor (stations 1-20, Figure 1). Second, a survey of the hydrography along the southern coast of Baja California was made, which included seven short hydrographic sections each consisting of six or seven CTD stations (stations 15-67, Figure 1). These sections radiated from the southern tip of the Baja California peninsula from approximately 23.75°N in the Gulf of California to 23.00°N in the Pacific Ocean (Figure 1). Third, hydrographic stations were occupied along the 1000 m isobath on the Pacific coast of the Baja California peninsula approximately every degree of latitude to 33°N[1] as the ship travelled north to Moss Landing,

[1] CTDs were not deployed at 29° and 30°N latitude. An additional CTD was deployed at 32.5°N latitude.

Introducción

Este proyecto inició en abril de 1992 a través de un estudio oceanográfico conjunto entre la Universidad Autónoma de Baja California y la Naval Postgraduate School, para estudiar las corrientes oceánicas y las propiedades de las masas de agua a través de la boca del Golfo de California/Mar de Cortez, con particular interés en determinar la estructura de la Corriente de California en el área (Rago *et al.*, 1992). Un aspecto relevante del proyecto fue la medición directa de las corrientes usando una sonda acústica llamada Pegasus (Spain *et al.*, 1981). El proyecto fue denominado PESCAR (PEgasus en el Área del Mar de Cortez). Una sección de seis estaciones de Pegasus (Collins *et al.,* 1997; Garfield *et al.*, 1995) se estableció en la entrada al Golfo, a través de la Cuenca Pescadero, entre Cabo Pulmo, del lado de la península de Baja California y El Dorado, Sinaloa, del lado del continente mexicano, a lo largo de la cual (además del Pegasus), estaciones hidrográficas (CTD) (estaciones 1-20, Figura 1) han sido ocupadas ocasionalmente a través de los años (Spearman, 1993; Castro *et al.*, 2000; Mascarenhas *et al.*, 2004; Castro *et al.*, 2006; Collins *et al.*, 2013).

Este fue el crucero 24th del proyecto, durante el cual se realizaron tres objetivos. En primer lugar, la sección hidrográfica a través de la Cuenca Pescadero fue ocupada con veinte lances de CTD hasta cerca del fondo del mar (estaciones 1-20, Figura 1). En segundo lugar se realizó un estudio de la hidrografía de la costa sur de la Península de Baja California, el cual incluyó siete secciones hidrográficas cortas, que constaron de seis a siete estaciones de CTD (estaciones 15-67, Figura 1). Estas secciones irradiaron desde el extremo sur de la península de Baja California, aproximadamente desde 23.75°N en el Golfo de California hasta 23.00°N en el Pacífico (Figura 1). En tercer lugar, se realizaron estaciones hidrográficas a lo largo

[1] CTDs no fueron desplegados en 29° y latitud°N 30. Un CTD adicional fue desplegado en 32,5 una latitud N°.

California (stations 67-76, Figure 2). Two additional CTD casts (stations 76 and 77, Figure 2) were occupied at approximately 33°N and 35.5°N. Expendable bathythermographs (XBTs) were spaced every 20' of latitude between Pacific hydrographic stations 67-73 to increase the alongshore resolution of temperature variability.

These data were collected aboard the *R/V Point Sur* during its return transit from Palmer Station, Antarctica, to Moss Landing, California. The period of data collection was 19 April to 2 May 2013.

The purpose of this report is to provide summary listings of cruise data, a description of data collection and processing procedures, and a brief report of oceanographic conditions. As noted above, vertical profiles of water properties were acquired. Water velocity was measured using both shipboard and lowered acoustic Doppler current profilers. Continuous measurements of sea surface water properties (temperature, salinity, transmissivity, fluorometer data) and atmospheric conditions (wind, humidity, solar radiation) were also made.

Scientific participants on the cruise came from Moss Landing Marine Laboratories (MLML) and the Naval Postgraduate School (NPS) in Moss Landing and Monterey, California, United States, respectively, and the Universidad Autónoma de Baja California (UABC) in Ensenada, Baja California, Mexico. A list of the science participants is given in Appendix 1.

de la isobata de 1000 m en la costa del Pacífico frente a la península de Baja California, aproximadamente cada grado de la latitud hasta 33°N[1] , cuando el buque viajó hacia el norte a Moss Landing, California (estaciones 67-76, Figura 2). Dos lances de CTD adicionales (estaciones 76 y 77, Figura 2) fueron realizados entre 33°N y 35.5°N. Se incluyeron lances de batitermógrafos desechables (XBTs) espaciados cada 20' de latitud entre las estaciones hidrográficas 67-73, para aumentar la resolución de la variabilidad de la temperatura a lo largo de la costa.

Estos datos fueron colectados a bordo del *R/V Point Sur* durante su tránsito de regreso desde la estación Palmer de la Antártida, a Moss Landing, California. El período de recolección de los datos fue del 19 de abril al 02 de mayo de 2013.

El propósito de este reporte es proporcionar un resumen de los datos obtenidos del crucero, así como una descripción de la recopilación, procedimientos y procesado de los datos, además de un breve informe de las condiciones oceanográficas. Como se mencionó arriba, se obtuvieron perfiles verticales de las propiedades del agua. La velocidad de la corriente se midió usando Perfiladores Acústicos Doppler, tanto desde a bordo del buque, como bajados a través de la columna de agua. También se realizaron mediciones continuas superficiales de las propiedades de agua del mar (temperatura, salinidad, transmisividad, fluorómetro) y de las condiciones atmosféricas (viento, humedad, radiación solar, etc.).

Los participantes científicos en el crucero concurrieron de Moss Landing Marine Laboratories (MLML) y de la Naval Postgraduate School (NPS) en Moss Landing y Monterey, California, Estados Unidos, respectivamente, así como de la Universidad Autónoma de Baja California (UABC) en Ensenada, Baja California, México. En el Apéndice 1 se da una lista de los participantes.

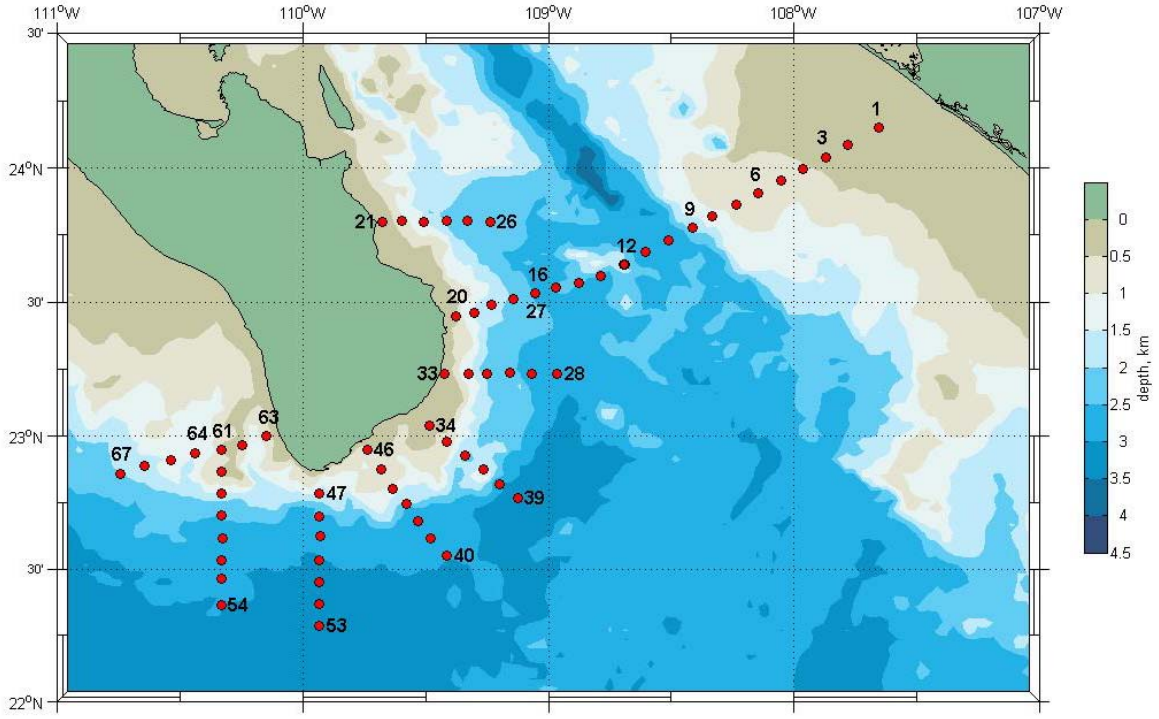

Figure 1: *Hydrographic stations occupied at the entrance to the Gulf of California during the PESCAR24 cruise of April 2013.* Stations are numbered sequentially in the order in which they were occupied. Note that stations 16 and 27 were co-located.

Figura 1: *Localización de las estaciones hidrográficas realizadas a la entrada del Golfo de California durante el crucero PESCAR24 en abril de 2013.* Las estaciones están numeradas secuencialmente en el orden en que fueron ocupadas. Note que las estaciones 16 y 27 fueron co-localizadas.

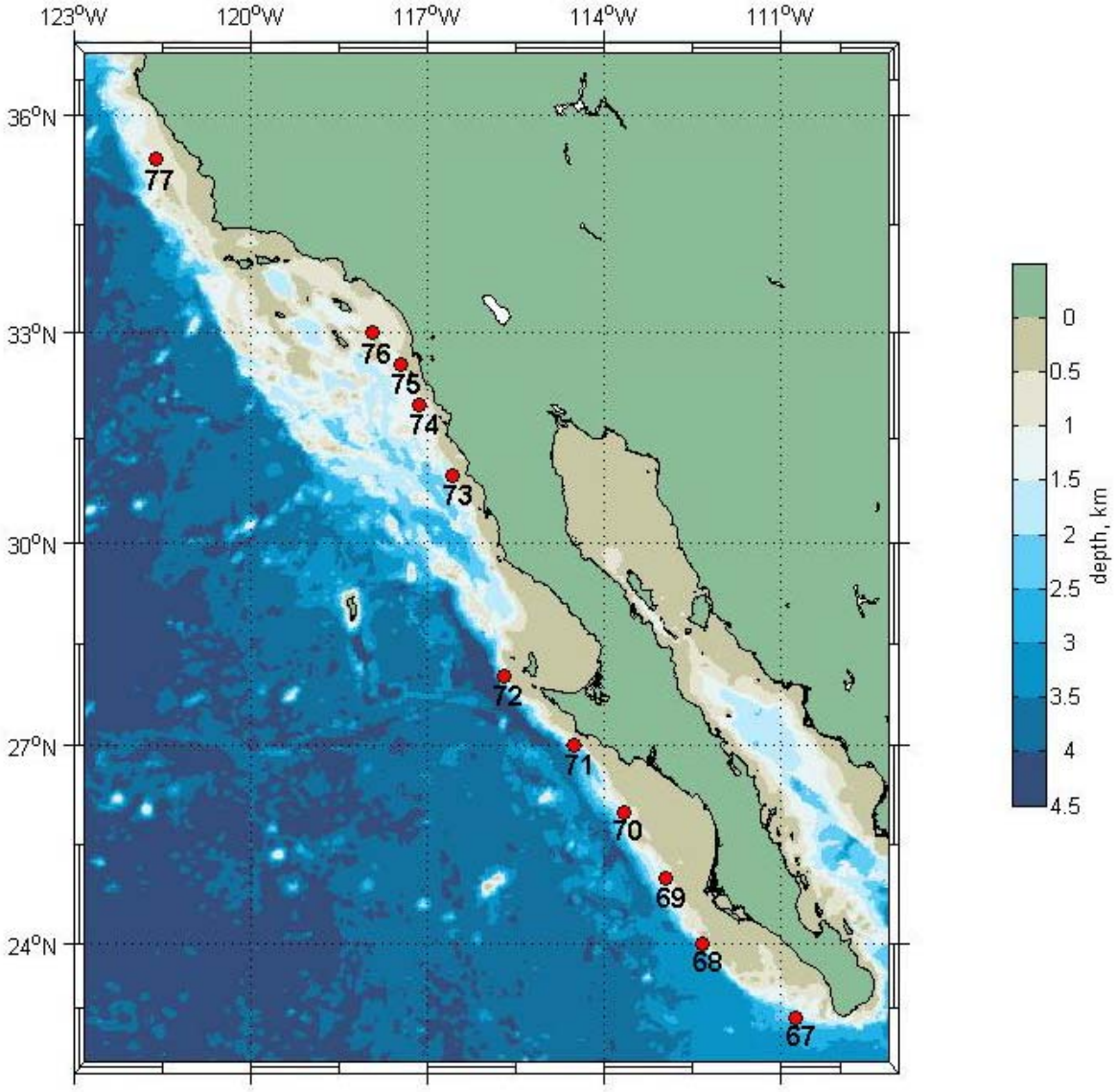

Figure 2: *Hydrographic stations occupied during April 2013 near the 1000 m isobath between the Entrance to the Gulf of California and southern California.*

Figura 2: *Localización de las estaciones hidrográficas realizadas durante abril de 2013 aproximadamente sobre la isobata de 1000 m entre la Entrada al Golfo de California y el sur de California.*

Standard Procedures

CTD/Rosette Data:

At each station (Figure 1, Figure 2) a Sea-Bird Electronics, Inc. 911*plus* Conductivity-Temperature-Depth (CTD) instrument fitted with a 12-place rosette was deployed. Since a downward looking acoustic Doppler current profiler (LADCP) was attached within the CTD cage, only ten 10-liter PVC Niskin bottles were used with two 5-liter PVC Niskin bottles placed above the LADCP. For stations 1-20 across the mouth of the Gulf of California, the CTD was lowered to the bottom. For all other CTD casts, the CTD was lowered to 1000 meters or the bottom (whichever came first). Water samples for calibration of CTD conductivity measurements were always collected at the bottom of the cast and then also either at the salinity minimum or at the surface of each cast. Water samples for CTD conductivity calibration were also occasionally collected at other depths (where nutrient samples were being obtained).

Besides temperature (dual sensors), conductivity (dual sensors), and pressure, the CTD also measured fluorescence, dissolved oxygen content, transmissivity, and photosynthetically available radiation (PAR). Except for PAR, transmissivity, and the secondary of the dual sensors, all CTD parameters are reported here.

Water samples collected for conductivity calibration were analyzed both during and after the cruise using various salinometers. The original intent had been to use a Guildline Portasal salinometer to analyze collected water samples during the cruise. Unfortunately, after little more than two cases of these water samples had been analyzed, the Portasal's pump failed, rendering the salinometer useless. The remaining salinity water samples were then analyzed at the Naval Postgraduate School (NPS) using a Guildline model 8400B Autosal salinometer. Again, this instrument quickly developed problems of its own after a bit more than one case of salinity water samples had been analyzed. Thus, the remaining approximately case and a half of salinity water samples were analyzed at the

Procedimientos estándar

Datos CTD/roseta:

En cada estación (Figura 1, Figura 2) fue utilizado el instrumento Sea-Bird Electronics, Inc. 911*plus* Conductividad-Temperatura-Profundidad (CTD), añadido a una roseta de 12-compartimientos. Además en la armazón del CTD, se agregó un Perfilador de Corrientes Acústico Doppler con los sensores ubicados hacia abajo (LADCP). Solo diez botellas Niskin de 10 litros fueron utilizadas, además de dos botellas Niskin de PVC de 5 litros colocadas por encima del LADCP. Para las estaciones 1-20 a través de la entrada al Golfo de California, el CTD se bajó hasta el fondo. Para todos los demás lances, el CTD se bajó hasta 1000 m o cerca del fondo (cualquiera que fuese primero). Para la calibración de la conductividad del CTD, se colectaron muestras de agua en el fondo de cada lance, también en el mínimo de salinidad o en la superficie. Ocasionalmente también se recolectaron muestras de agua para la calibración de conductividad CTD en otras profundidades (donde las muestras de nutrientes fueron obtenidas).

Además de la temperatura (sensores duales), conductividad (sensores duales) y presión, el CTD también midió fluorescencia, contenido de oxígeno disuelto, transmisividad y la radiación fotosintéticamente disponible (PAR). A excepción de PAR, la transmisividad y los sensores secundarios duales, todos los parámetros del CTD se reportan aquí.

Se analizaron muestras de agua para la calibración de la conductividad durante y después del crucero con varios salinómetros. La intención original fue utilizar un salinómetro Guildline Portasal para analizar las muestras de agua recogidas durante el crucero. Desafortunadamente, después de un poco más de dos casos de que se habían analizado estas muestras de agua, la bomba del Portasal falló, haciendo inútil el salinómetro. Las muestras de agua de salinidad restantes se analizaron entonces en la Naval Postgraduate School (NPS) mediante un salinómetro Guildline modelo 8400B Autosal. Una vez más, el instrumento rápidamente tuvo problemas después de que se habían analizado un poco más de un caso de

Monterey Bay Aquarium Research Institute (MBARI) using their Guildline model 8400B Autosal salinometer. Despite the three different salinometers used, the results were consistent among all the instruments. Salinometer results used for CTD calibration are given in Appendix 2.

Regressions between the salinometers' results and the conductivities measured by the CTD at the times the Niskin bottles were tripped were made. At this point, however, it became obvious that there was some sort of data biasing associated with the CTD's secondary conductivity sensor-- biasing which manifested itself as an apparent drift over time of its conductivity values. To de-bias the secondary conductivity data, a least squares linear fit to the secondary conductivity sensor data versus CTD cast number (i.e., versus time) was determined,

$$\text{Offset} = (1.173\text{x}10^{-5})n + 1.209\text{x}10^{-4},$$

where n = number of CTD cast.

From this fit, individual offsets to the measured secondary conductivities were calculated and applied to each CTD cast. Finally, regressions between the salinometers' results and the "de-biased" conductivities measured by the CTD at the times the Niskin bottles were tripped were made and slope and offset estimated for linear fits of the conductivity difference vs. the true conductivity. For the primary (secondary) sensors, the slope was 0.0001003783 (-0.0000599633) and the offset 0.0028173234 (0.0002623066).

The true conductivities were then calculated for the primary and secondary conductivity sensors,

True Conductivity = (Measured Conductivity + Offset)/(1-Slope).

Comparison of the corrected salinity differences (bottle salt – corrected CTD salt) vs. CTD station produced (not unexpectedly) graphs whose means were insignificantly different from

muestras de agua de salinidad. Por lo tanto, el resto de los casos y aproximadamente la mitad de las muestras de agua de salinidad se analizaron en el Monterey Bay Aquarium Research Institutute (MBARI), utilizando un salinómetro Guildline modelo 8400B Autosal. A pesar de los tres salinómetros diferentes utilizados, los resultados fueron consistentes entre todos los instrumentos. Los resultados de los salinómetro utilizados para la calibración del CTD están en el Apéndice 2.

Se realizaron regresiones entre los resultados de los salinómetros y las mediciones de conductividad por el CTD en el momento que las botellas Niskin fueron disparadas. En este punto, sin embargo, fue evidente que había algunos datos con tendencia asociados con el sensor de conductividad secundario del CTD—tendencia que se manifestó como una deriva aparente sobre el tiempo de sus valores de conductividad. Para la tendencia de los datos de conductividad secundaria, se determinó un ajuste lineal por mínimos cuadrados a los datos del sensor de conductividad secundario contra el numero de lance del CTD (es decir, contra tiempo),

$$\text{Ajuste} = (1.173\text{x}10^{-5})n + 1.209\text{x}10^{-4},$$

donde n = número de lance de CTD.

A partir de éste ajuste, las compensaciones individuales a las conductividades secundarias fueron calculadas y aplicadas a cada lance de CTD. Finalmente, se realizaron regresiones entre los resultados de los salinómetros y los datos con tendencia de las conductividades medidas por el CTD al tiempo que las botellas Niskin fueron disparadas y la pendiente fue estimada por el ajuste lineal y el desplazamiento de la diferencia contra la conductividad verdadera. Para los sensores primarios (secundarios), la pendiente fue 0.0001003783 (-0.0000599633) y del ajuste 0.0028173234 (0.0002623066).

Las conductividades verdaderas fueron entonces calculadas para los sensores de conductividad primario y secundario,

zero. The scatter for these values (standard deviations) were ±0.0021 and ±0.0024 for the primary and secondary sensors, respectively. Note that the total number of "deep" salinities used was 77 and 74 out of 81 and 81 for primary and secondary salinity, respectively.

Seven replicate samples were collected at each of three stations. The standard deviation of the salinity determined by laboratory salinometers for these three stations ranged from 0.0016 to 0.0022.

The salinometers were standardized using IAPSO Standard Seawater batches P153 (Portasal and NPS Autosal) and P155 (MBARI Autosal) before and after each set of water samples was analyzed. Salinity values were calculated using the algorithms for the Practical Salinity Scale, 1978 (UNESCO, 1981).

The CTD for this cruise was outfitted with a Sea-Bird Electronics, Inc., SBE 43 oxygen sensor. The measurements had an initial accuracy of ±2% saturation and have shown little variation over time (one µmol/kg) (Janzen and Larsen, 2008). This sensor is a polarographic membrane that outputs a voltage proportional to the temperature-compensated current flow occurring when oxygen is reacted inside the membrane. Dissolved oxygen concentration is then calculated from a modified version of the algorithm by Owens and Millard (1985). No dissolved oxygen (Winkler) samples were collected during this cruise. However, to compensate for our inability to directly calibrate the oxygen data, the oxygen sensor was returned immediately following the cruise to Sea-Bird Electronics, Inc., for post-cruise calibration. This post-cruise calibration was then used to generate the oxygen data presented in this report. Either the pump or the oxygen sensor failed below 144 dbars at Station 8.

The CTD was also outfitted with a Wet Labs ECO AFL fluorometer and a transmissometer. The transmissometer failed at station 17 and could neither be repaired nor replaced. Transmissometer operation and data collection nevertheless continued and were included in the processed CTD data files. Since

Conductividad verdadera = (conductividad medida + ajuste)/(1-pendiente).

La comparación de las diferencias de salinidad corregida (botella de sal – salinidad corregida del CTD) contra estación de CTD produjo gráficas cuyos medias fueron insignificantemente diferentes de cero. La dispersión de estos valores (desviación estándar) fueron ±0.0021 y ±0.0024 para los sensores primarios y secundarios, respectivamente. Note que el número total de "profundidades" de salinidades utilizadas fue 77 y 74 de 81 y 81 para salinidad primaria y secundaria, respectivamente.

Siete muestras replica fueron recolectadas en cada una de tres estaciones. La desviación estándar de la salinidad determinada en el laboratorio por los salinómetros para estas tres estaciones varió de 0.0016 a 0.0022.

Los salinómetros se estandarizaron utilizando muestras de Agua de Mar Estándar IAPSO P153 (Portasal y Autosal NPS) y P155 (MBARI Autosal) antes y después de que cada conjunto de muestras se analizara. Los valores de salinidad se calcularon usando los algoritmos para la escala práctica de salinidad, 1978 (UNESCO, 1981).

El CTD para este crucero fue equipado con un Sea-Bird Electronics, Inc., SBE 43 sensor de oxígeno. Las mediciones tuvieron una precisión inicial de ±2% de saturación y mostraron poca variación en el tiempo (un µmol/kg) (Janzen y Larsen, 2008). Este sensor consiste de una membrana "polarográfica" que emite un voltaje proporcional al flujo de temperatura compensado cuando el oxígeno reaccionó dentro de la membrana. La concentración de oxígeno disuelto se calcula entonces de una versión modificada del algoritmo de Owens y Millard (1985). No se colectaron muestras de oxígeno disuelto (Winkler) durante este crucero. Sin embargo, para remediar nuestra incapacidad de calibrar directamente los datos de oxígeno, el sensor de oxígeno fue devuelto inmediatamente después del crucero a Sea-Bird Electronics, Inc., para su calibración. Esta calibración después del crucero

no water samples were collected for direct measurement of chlorophyll content, there was no way to calibrate the fluorometer data. For that reason, the fluorometer data are not presented or listed in this report. Correction and processing of the transmissometer data were beyond our expertise, so they are neither listed nor presented in this report either. Listings of CTD data at standard pressures can be found in Appendix 3.

Nutrient samples were obtained at CTD stations 1-15, 17-20, 26-28, 32-34, 39, 40, 46, 47, 53, 54, 61, 62, 64, and 68-77. Samples were collected in 45-ml polypropylene screw-capped containers, which were rinsed three times and then filled about two thirds full. Samples were immediately frozen and returned to MBARI for later analysis on an AlpChem autoanalyzer, as in Sakamoto *et al*. (1990). Results of nutrient analyses can be found in Appendix 4.

Lowered Acoustic Doppler Current Profiler (LADCP):

A Sentinel Workhorse Acoustic Doppler Current Profiler (ADCP) was mounted to the CTD/Rosette cage beginning with CTD cast 1. It was configured to be and was used as a Lowered ADCP (LADCP) for the remainder of the cruise through CTD cast 72. Specifically, LADCP data were collected during all CTD casts except 0, 2-4, 7, 20, 21, 27, 33, 34, 46, and 73-77. A typical command file is given in Table 3. Generally, the only difference between command files for each LADCP deployment was the name of the log file, which was changed to include the number of the corresponding CTD cast during which the LADCP was deployed.

Data from the Lowered Acoustic Doppler Current Profiler (LADCP) were processed using IFM-GEOMAR Matlab LADCP Software Version 10.8 (February 7, 2009). This version of the software implemented a velocity inversion method (e.g., see Visbeck 2002, Thurnherr 2010) by Gerd Krahmann of the Leibniz Institute of Marine Sciences in Kiel, Germany. The depth interval between adjacent super-ensembles was set to 8

fue utilizada para generar los datos de oxígeno presentados en este informe. La bomba o el sensor de oxígeno falló debajo de los 144 dbars en la estación 8.

El CTD también estuvo equipado con un fluorómetro Wet Labs ECO AFL y un transmisómetro. El transmisómetro falló en la estación 17 y nunca pudo ser reparado ni reemplazado. No obstante la operación y recopilación de datos del transmisómetro continuaron y se incluyeron en los archivos de datos procesados del CTD. Puesto que no se tomaron muestras de agua para la medición directa del contenido de clorofila, no hubo manera de calibrar los datos del Fluorímetro. Por esa razón, los datos del Fluorímetro no aparecen presentados o mencionados en este informe. La corrección y tratamiento de los datos del transmisómetro están más allá de nuestro conocimiento, así que no están registrados ni presentados en este informe tampoco. Listados de datos del CTD a presiones estándar son presentados en el Apéndice 3.

Las muestras de nutrientes se obtuvieron en las estaciones de CTD 1-15, 17-20, 26-28, 32-34, 39, 40, 46, 47, 53, 54, 61, 62, 64 y 68-77. Las muestras se recolectaron en envases de polipropileno de 45 ml con tapón de rosca, que fueron enjuagados tres veces y luego rellenados cerca de dos tercios del total. Las muestras fueron congeladas inmediatamente y enviadas a MBARI para su posterior análisis en un auto-analizador AlpChem, como en Sakamoto *et al*. (1990). Resultados de los análisis de nutrientes pueden encontrarse en el Apéndice 4.

Perfilador de Corrientes Acústico Doppler "bajado" con el CTD (LADCP):

Al principio del crucero, en el primer lance de CTD, un "Sentinel Workhorse Acoustic Doppler Current Profiler (ADCP)" se montó en la jaula del CTD/roseta. Este instrumento fue configurado para ser utilizado como un ADCP que puede ser "bajado" (LADCP) con el lance de CTD, y fue utilizado para el resto del crucero hasta el lance 72. Específicamente, se recopilaron datos LADCP durante todos los lances de CTD, excepto en 0, 2-4, 7, 20, 21, 27,

m. CTD profiles averaged over 1-dbar bins were used to account for sound speed variations within the water column. One second averaged CTD data were used as navigational information for all stations except station 11. Since there were no upcast CTD data available for station 11, 30-second navigational information from the ship's Underway Data Acquisition System (UDAS) was interpolated to a 1 second interval and used to process LADCP data. (Note that use of the UDAS navigation in this manner did not seem to adversely affect the errors of the LADCP data.) Broadband shipboard ADCP data (SADCP) were also used with the IFM-GEOMAR processing software to reduce velocity errors. The processed ADCP data contain zonal and meridional velocity components with the 8-m resolution, as well as corresponding velocity inversion errors. The velocity inversion errors typically ranged from 0.001 to 0.01 m/s.

Ship Mounted Acoustic Doppler Current Profilers (SADCP)

Two acoustic Doppler current profilers, a 75 kHz Ocean Surveyor and a 300 kHz Workhorse Mariner, were mounted in a well on the underside of the ship's hull. Both SADCPs were manufactured by Teledyne-RD Instruments. The Ocean Surveyor operated continuously in two modes, a broad band mode which obtained data in 8 m bins and a narrow band mode which obtained data in 16 m bins. Data were collected at 2-s intervals and averaged into five minute ensembles. The Workhorse Mariner collected data at 1-s intervals in 2 m bins and were averaged into 2 minute ensembles.

Velocity profiles for each CTD station were determined by binning SADCP and LADCP observed velocity components into 8 m bins and averaging. In the upper 50 m or so of the water column, LADCP velocity estimates indicated no vertical shear and were excluded from these averages. Mean values of u and v are given in Appendix 6 for each CTD station.

33, 34, 46, y 73-77. Un archivo de comandos típico se muestra en la Tabla 3. En general, la única diferencia entre archivos de comandos para cada implementación de LADCP fue el nombre del archivo de registro, el cual fue cambiado para incluir el número del lance de CTD correspondiente durante el cual se desplegó el LADCP.

Los datos del Perfilador Acústico Doppler de Corrientes (LADCP) se procesaron utilizando IFM-GEOMAR Matlab LADCP Software versión 10.8 (07 de febrero de 2009). Esta versión del software tiene implementado un método de inversión de velocidad (véase por ejemplo, Visbeck 2002, Thurnherr 2010) por Gerd Krahmann del Instituto Leibniz de Ciencias Marinas en Kiel, Alemania. El intervalo de profundidad entre súper-ensambles conjuntos se estableció en 8 m. Los perfiles de CTD promediados en bloques de 1-dbar fueron utilizados para tomar en cuenta las variaciones de velocidad del sonido dentro de la columna de agua. Datos del CTD promediados cada segundo se utilizaron como información para la navegación para todas las estaciones excepto la estación 11. Puesto que no hubo ningún datos del CTD disponible en el lance de subida para la estación 11, se utilizó información del Sistema de Adquisición de Datos en Curso (UDAS) del buque, el cual fue interpolado de 30 segundos a cada 1 segundo y así utilizado para procesar los datos del LADCP (Nótese que el uso de la navegación del UDAS de esta forma no parece afectar negativamente con errores a los datos del LADCP). Los datos de un ADCP de banda ancha a bordo del buque (SADCP) fueron también procesados con el software de IFM-GEOMAR para reducir errores de velocidad. Los datos procesados del ADCP contienen componentes de velocidad zonal y meridional con resolución de 8 m, así como errores de inversión de velocidad correspondiente. Los errores de inversión de velocidad normalmente fluctuaron entre 0.001 a 0.01 m/s.

Perfiladores de Corrientes Acústicos Doppler instalados en el Buque (SADCP)

Dos Perfiladores de Corrientes

Expendable Bathythermographs (XBT)

Expendable Bathythermographs (XBTs) were launched at evenly spaced intervals between CTD casts during the *R/V Point Sur*'s northward transit along the Pacific Coast of Baja California to San Diego, California. A model T7 XBT was used for all drops. The T7 probes provided for data collection up to 760 m while the *R/V Point Sur* was underway at full speed (about 10 knots). Temperature data had a vertical resolution of 0.65 m and an accuracy of $\pm$0.1^{o}C. The T7 XBTs were acquired from Lockheed Martin Sippican in Marion, MA, and manufactured in Mexico. Data were acquired using an MK21 data acquisition system and associated hardware, both of which were also acquired from Lockheed Martin Sippican.

Listings of XBT data are given in Appendix 7.

Underway Data Observations

Measurements of ship's position, speed, and course, as well as oceanographic and meteorological properties, were recorded throughout the PESCAR24 cruise. In general, meteorological instrumentation was mounted atop the mast of the *R/V Point Sur*, while oceanographic instrumentation measured properties of water pumped through the ship's uncontaminated seawater system from a sea chest located next to the ship's keel at approximately three meters below the surface. These data were recorded at approximately 30-second intervals. Note that there were no UDAS data available for the transit from San Diego to Moss Landing.

The UDAS data included 46 variables. Some observations (port winds, longitude as determined by Ashtech GPS receiver, rates of flow through the sea water system) were missing and others (fluorometer, starboard winds) appear to be unusable. It is recommended that the wind observations recorded by the ship's officers (see below) be used for calculations of air-sea fluxes.

Three-meter CTD temperature and

Acústicos Doppler, uno de 75 kHz Ocean Surveyor y otro de 300 kHz Workhorse Mariner, se montaron en la parte inferior del casco del buque. Ambos SADCPs fueron fabricados por Teledyne-RD Instruments. El Ocean Surveyor operó continuamente en dos modos; un modo de banda ancha que obtuvo datos en bloques (bins) de 8 m y un modo de banda angosta que obtuvo datos en bloques de 16 m. Los datos fueron recogidos a intervalos de 2-s y se promediaron en conjuntos de cinco minutos. El Mariner Workhorse recopiló datos en intervalos de 1 s en bloques de 2 m y se promedió en conjuntos de 2 minutos.

Perfiles de velocidad para cada estación de CTD fueron determinados para conjuntar las componentes de velocidad observadas con el SADCP y el LADCP promediados en bloques de 8 m. En los primeros 50 m superiores o más de la columna de agua, las estimaciones de velocidad del LADCP no indicaron el corte vertical y fueron excluidas de estos promedios. Valores promedio de u y v se presentan en el Apéndice 6 para cada estación CTD.

Batitermógrafos Desechables (XBT)

Batitermógrafos Desechables (XBTs) fueron lanzados a intervalos espaciados uniformemente entre lances de CTD durante el tránsito hacia el norte del *R/V Point Sur*, a lo largo de la costa del Pacífico de la península de Baja California a San Diego, California. Se utilizó un modelo T7 XBT para todos los lances. Las sondas T7 son provistas para la recolección de datos hasta 760 m mientras que el *R/V Point Sur* estaba en marcha a toda velocidad (10 nudos). Los datos de temperatura tuvieron una resolución vertical de 0.65 m y una precisión de $\pm$0.1^{o}C. Los XBTs T7 fueron adquiridos de Lockheed Martin Sippican en Marion, MA, y fabricados en México. Los datos fueron obtenidos mediante un sistema de adquisición de datos MK21 con su hardware asociado, los cuales también fueron adquiridos de Lockheed Martin Sippican.

La lista de los datos de XBT se presentan en el Apéndice 7.

salinity data at the start of each cast were compared with UDAS temperature and salinity at the same time. Differences between CTD and UDAS observations were determined. Extreme values of these differences were removed. For temperature, extremes included values with an absolute temperature difference greater than 0.1°C. For salinity, values of salinity difference greater than 0.3 and less than 0.15 were removed. This meant that for the 75 possible comparisons, 72 (63) could be used to generate corrections for salinity (temperature). For temperature, the mean value (standard deviation) of the difference was -0.0210°C (0.0149°C) and was used to correct the UDAS sea surface temperatures. For sea surface salinity, the correction varied linearly with the value of salinity, and linear regression yielded

UDAS salinity correction = -1.2716 + 0.0442*(UDAS salinity).

After correction of UDAS sea surface salinity, the standard deviation between corrected UDAS and observed CTD values was 0.0116.

Appendix 8 lists selected UDAS data at the start of each CTD cast. Data include the near surface water temperature and salinity, as well as the air temperature, barometric pressure, and short-wave radiation at the start of each hydrographic station.

Ship's Meteorological Observations

Marine meteorological observations were made by the ship's officers every four hours and recorded in the ship's log book. Observations included wind speed and direction, wave and swell height and direction, cloudiness and one measurement of wet and dry bulb air temperatures. These observations (excluding the one set of wet and dry bulb temperatures) are included in Appendix 9.

Observación de los datos en Curso

Las mediciones de la posición del buque, la velocidad y el rumbo, así como las propiedades oceanográficas y meteorológicas, se registraron a lo largo de la travesía del PESCAR24 con el UDAS. En general, la instrumentación meteorológica fue montada en la parte alta del mástil del *R/V Point Sur*, mientras que la instrumentación oceanográfica midió las propiedades del agua que fue bombeada a través del sistema de agua de mar no contaminada desde un receptáculo situado junto a la quilla del barco, a unos tres metros bajo la superficie. Estos datos fueron registrados en intervalos de aproximadamente 30 segundos. Tomar en cuenta que no hubo ningún dato disponible del UDAS en el tránsito de San Diego a Moss Landing.

Los datos UDAS incluyeron 46 variables. Algunas observaciones (vientos del puerto, longitud determinada por el receptor GPS Ashtech, tasas del flujo a través del sistema de agua de mar) y otros (fluorómetro, vientos a estribor) parecen estar inutilizables. Se recomienda que las observaciones de viento registradas por oficiales de la nave (véase abajo) sean utilizadas para los cálculos de los flujos aire-mar.

Datos de temperatura y salinidad del CTD a tres metros al inicio de cada lance fueron comparados con los datos de temperatura y salinidad del UDAS al mismo tiempo. Se determinaron las diferencias entre las observaciones del CTD y el UDAS. Se eliminaron los valores extremos de estas diferencias. Para las temperaturas, valores extremos se incluyeron con una diferencia absoluta de temperatura superior a 0.1°C. Para salinidad, se eliminaron los valores de la diferencia de salinidad superior a 0.3 y menos de 0.15. Esto significó que de las 75 posibles comparaciones, 72 (63) podría utilizarse para generar correcciones sobre la salinidad (temperatura). Para la temperatura, el valor medio (desviación estándar) de la diferencia fue de -0.0210°C (0.0149°C) y fue utilizado para corregir las temperaturas superficiales del mar del UDAS. De la salinidad superficial del mar,

la corrección varío linealmente con el valor de salinidad y la regresión lineal resultó como

Corrección de salinidad del UDAS = -1.2716 + 0.0442*(salinidad del UDAS).

Después de la corrección de la salinidad superficial del UDAS, la desviación estándar entre el UDAS corregido y los valores observados del CTD fue de 0.0116.

En el Apéndice 8 se presenta los datos seleccionados del UDAS al comienzo de cada lance de CTD. Los datos incluyen la temperatura y la salinidad cerca de la superficie del mar, así como la temperatura del aire, presión barométrica y la radiación de onda corta al comienzo de cada estación hidrográfica.

Observaciones meteorológicas del Buque

Las observaciones meteorológicas marinas fueron realizadas por oficiales del buque cada cuatro horas y registradas en la bitácora del buque. Las observaciones incluyen la velocidad y dirección del viento, altura y dirección de las olas, nubosidad y una medición de la temperatura del aire de bulbo húmedo y seco. Estas observaciones (excluyendo el conjunto de las temperaturas de bulbo húmedo y seco) se incluyen en el Apéndice 9.

Preliminary Results

Satellite sea surface temperature data (AVHRR) for the region of the cruise on 19 April 2013 are shown in Figure 3. Warmest waters (~24°C) occurred along the Sinaloa coast, extending offshore to 108°W at 22°N. A plume of warm water was also observed to extend across the entrance to the Gulf at 24°N on the Sinaloa coast. Immediately offshore of this plume, another pool of warm water was observed south of the southern tip of Baja California (Cabo San Lucas), which appeared connected to the western tip of the southern coast of Baja California. Note that this offshore pool of water was separated from the Sinaloa plume by a narrow filament of cooler water, ~21°C.

Resultados preliminares

En la Figura 3 se muestran una imagen de satélite de la temperatura superficial del mar (AVHRR) para la región del crucero, el 19 de abril de 2013. Las aguas más cálidas (~24°C) ocurrieron a lo largo de la costa de Sinaloa, extendiéndose hacia fuera de la costa a 108°W y 22°N. Se observó también una pluma de agua cálida que se extendió a través de la entrada al Golfo a 24°N sobre la costa de Sinaloa. Lejos de la costa y cerca de esta pluma, otra alberca de agua cálida se observó al sur de la punta sur de Baja California (Cabo San Lucas), la cual se extendió hacia la punta occidental de la costa sur

Along the Pacific Coast of Baja California, sea surface temperatures immediately to the north of Cabo San Lucas cooled to about 21°C and continued to cool northward along the coast. A distinct plume of cold (18°C) water was observed flowing out of Bahia Sebastian Vizcaino and extended westward of Pta. Eugenia to the edge of the AVHRR image at 26.5°N, 117.5°W.

de la península. Note que ésta alberca de agua cálida fue separada de la pluma de Sinaloa por un filamento angosto de agua relativamente fría, ~ 21°C.

A lo largo de la costa del Pacífico, la temperatura superficial del mar inmediatamente al norte de Cabo San Lucas, fue más fría, ~21°C, y continuaron frías hacia el norte a lo largo de la

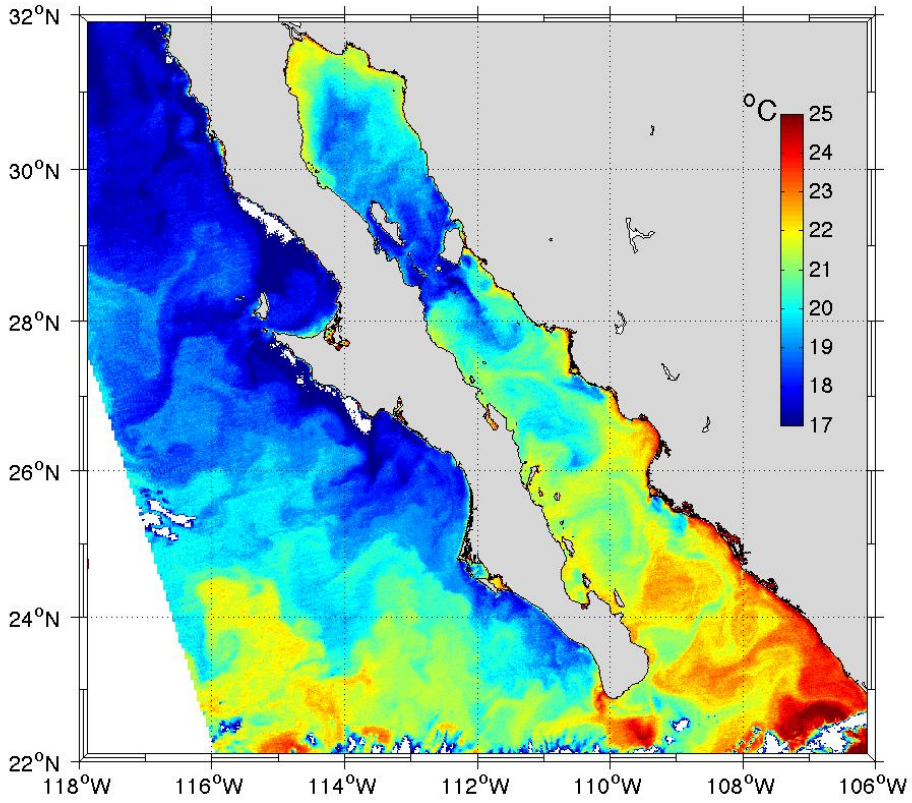

Figure 3: *Advanced Very High Resolution Radiometer (AVHRR) satellite imagery of sea surface temperature (°C) of the area of operation during the PESCAR24 cruise of April 2013.* This image was taken on 19 April 2013.

Figura 3: *Imagen del Radiómetro Avanzado de Muy Alta Resolución (AVHRR) de la temperatura superficial del mar (°C) de la zona de operación durante el crucero PESCAR24 en abril de 2013.* Esta imagen fue tomada el 19 de abril de 2013.

Cruise results are presented below in the order they were observed. Data are shown first for the Pescadero Basin hydrographic section. Charts are then presented for salinity and velocity at 50 meters' depth around the southern tip of Baja California. Finally, water properties along the Pacific Coast of Baja California are shown. Further analyses of these data will be presented at scientific meetings and published in open journals.

Pescadero Basin Hydrographic Section

Water properties for the upper 500 m are shown in Figure 4. In the upper 150 m, cores of high salinity Gulf water were observed on either side of the Gulf, with saltiest water (>S=35) centered about 75 meters' depth (Figure 4b, upper right). The salinity core observed next to Sinaloa was much larger than that off Baja California: the latter extended only from 50 – 100 m and was overlain and separated from the eastern core by fresher water (<S=34.5). While the 10°C isotherm rose almost monotonically from a depth of 375 m off Baja California to a depth of 280 m off Sinaloa, the pattern of isotherms warmer than 12°C was more complex, with troughs indicative of anticyclonic circulation at distances of 20 and 120 km from Baja California (Figure 4a, upper left). Above 50 m, these troughs appeared to be partially compensated by doming isotherms. Warmest surface temperatures were observed over the Sinaloa shelf and slope, ~22.5°C.

The density field was similar to that for temperature (Figure 4c, lower left). Next to the Baja California coast, the slope of the deeper isopycnals (26.75 kg/m^3) was opposite to that for shallower isopycnals (25.25-26.25 kg/m^3), indicative of shallow inflow and outflow at depth. But along the Sinaloa shelf and slope, all isopycals upwelled, indicative of outflow which extended to depth.

Measured flow into the Gulf across the

costa. Una pluma de agua fría (18°C) se observó fluyendo hacia fuera de la Bahía Sebastián Vizcaíno, la cual se extendió hacia el oeste de Pta. Eugenia hasta el margen de la imagen AVHRR a 26.5°N, 117.5°W.

Los resultados del crucero se presentan a continuación en el orden en que fueron realizadas las observaciones. Los datos se muestran primero para la sección hidrográfica de la Cuenca Pescadero. Posteriormente se presentan mapas de salinidad y velocidad a 50 m de profundidad alrededor de la punta sur de la península de Baja California. Por último, se muestran las propiedades del agua a lo largo de la costa del Pacífico de Baja California. Más análisis de estos datos serán presentados en congresos y revistas científicas abiertas.

Sección hidrográfica de la Cuenca Pescadero

Las propiedades del agua para los 500 m superiores se muestran en la Figura 4. En la parte superior de 150 m, núcleos de alta salinidad de Aguas del Golfo fueron observados en cada lado de la entrada al Golfo, con el agua mas salada (>S=35) centrada a ~75 m de profundidad (Figura 4b). El núcleo de salinidad que se observa del lado de Sinaloa fue mucho más grande que el de cerca a la península de Baja California: éste último se extendió de 50–100 m y se superpone y se separa del núcleo oriental por agua más fresca (<S=34.5). Mientras que la isoterma de 10ºC se elevó casi uniformemente desde una profundidad de 375 m cerca de Baja California a una profundidad de 280 m de Sinaloa, el patrón de isotermas más cálidas que 12°C fue más complejo, con depresiones o hundimientos indicativo de circulación anticiclónica en distancias de 20 y 120 km de Baja California (Figura 4a). Por arriba de 50 m, estas depresiones parecen estar parcialmente compensadas por domos de las isotermas. Las temperaturas más calientes en la superficie fueron observadas sobre la plataforma y el talud de Sinaloa, ~22.5°C.

Pescadero section is shown in Figure 5. The principal feature of the flow field was the 50 km wide band of outflow next to the Sinaloa shelf and slope that extended from the surface to 500 m. Peak outflow rates were greater than 0.5 m/s at a depth of 50 m. Largest inflow rates occurred next to the Baja California Coast in the upper 100 m with peak flow of 0.3 m/s; weaker inflows were also observed on either side of the outflow core at 50-75 m depth. Flows deeper than 500 m (not shown) were weak, generally less than 0.1 m/s, but had the same anticyclonic pattern as the upper layer flow shown in Figure 5.

El campo de densidad fue muy similar al de temperatura (Figura 4c). Cerca de la costa de Baja California, la pendiente de la isopícnas más profunda (26.75 kg/m^3) fue opuesta a la de isopícnas más someras (25.25-26.25 kg/m^3), indicativo de un flujo de entrada somero y un flujo de salida profundo. Aunque a lo largo de la plataforma y talud de Sinaloa, las isopícnas ascendieron, indicativo de un flujo de salida, el cual se extendió con la profundidad.

El campo de velocidad medido a través de la sección de la Cuenca Pescadero se muestra en la Figura 5. La característica principal del flujo, fue la banda de 50 km de ancho de un flujo hacia fuera del Golfo cerca de la plataforma y talud continental de Sinaloa, el cual se extendió desde la superficie hasta ~500 m. Las velocidades más altas del flujo rebasaron los 0.5 m/s a 50 m de profundidad. El flujo de entrada mas intenso ocurrió cerca de la costa de Baja California en los primeros 100 m con máximo de 0.3 m/s; también se observaron flujos débiles hacia dentro del Golfo en ambos lados del núcleo del flujo hacia fuera entre 50-75 m de profundidad. Flujos más profundos que 500 m (no mostrado) fueron débiles, generalmente menores que 0.1 m/s, pero tuvieron el mismo patrón anticiclónico del flujo de la capa superior que se muestra en la Figura 5.

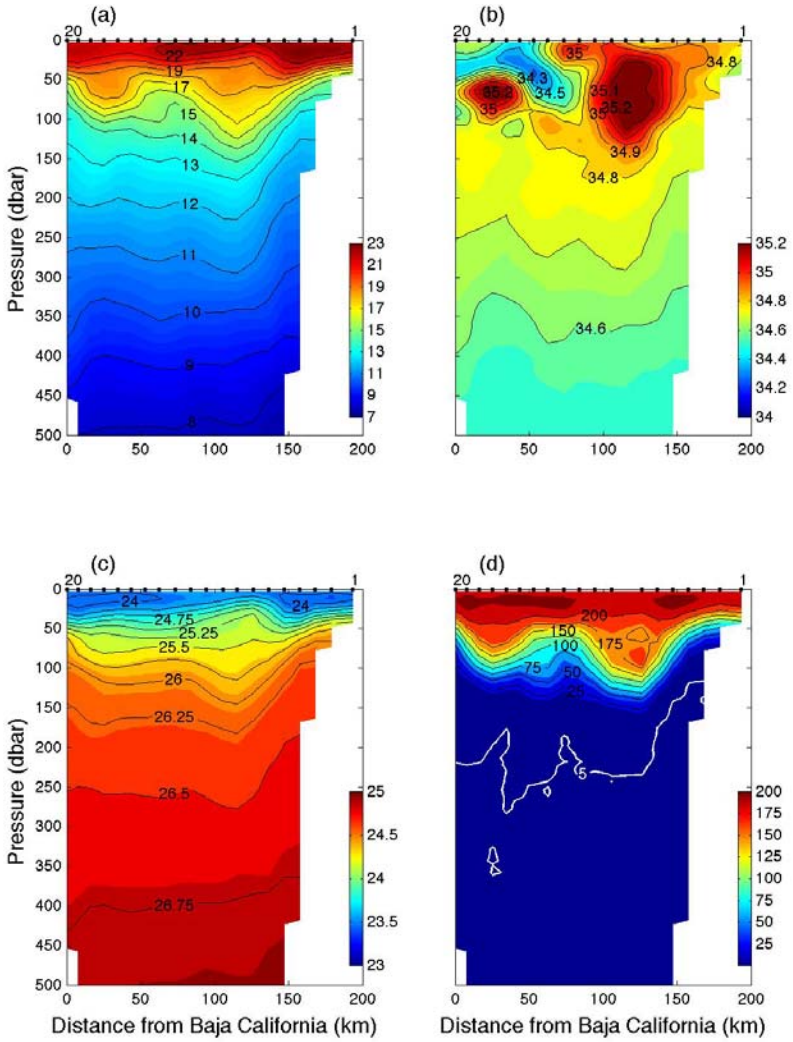

Figure 4. *Hydrographic Data for Pescadero Basin Section.* Black dots along the upper abscissa indicate station positions. **(a)** Temperature, °C. Contour interval is 1°C. **(b)** Salinity. Contour interval is 0.1. **(c)** Density Anomaly, kg/m^3. Contour interval is 0.25 kg/m^3. **(d)** Dissolved Oxygen, µmol/kg. Contour interval is 25 µmol/kg (black lines), with the 5 µmol/kg contour shown in white.

Figura 4. *Sección hidrográfica de la Cuenca Pescadero.* Puntos negros a lo largo de la abscisa superior indican las posiciones de la estación. **(a)** Temperatura, °C. El intervalo de contorno es de 1°C. **(b)** La salinidad. El intervalo de contorno es de 0.1. **(c)** Anomalía de la densidad, kg/m^3. El intervalo de contorno es de 0.25 kg/m^3. **(d)** Oxígeno disuelto, µmol/kg. El intervalo de contorno es de 25 µmol/kg (líneas negras), el contorno del 5 µmol/kg se muestra en color blanco.

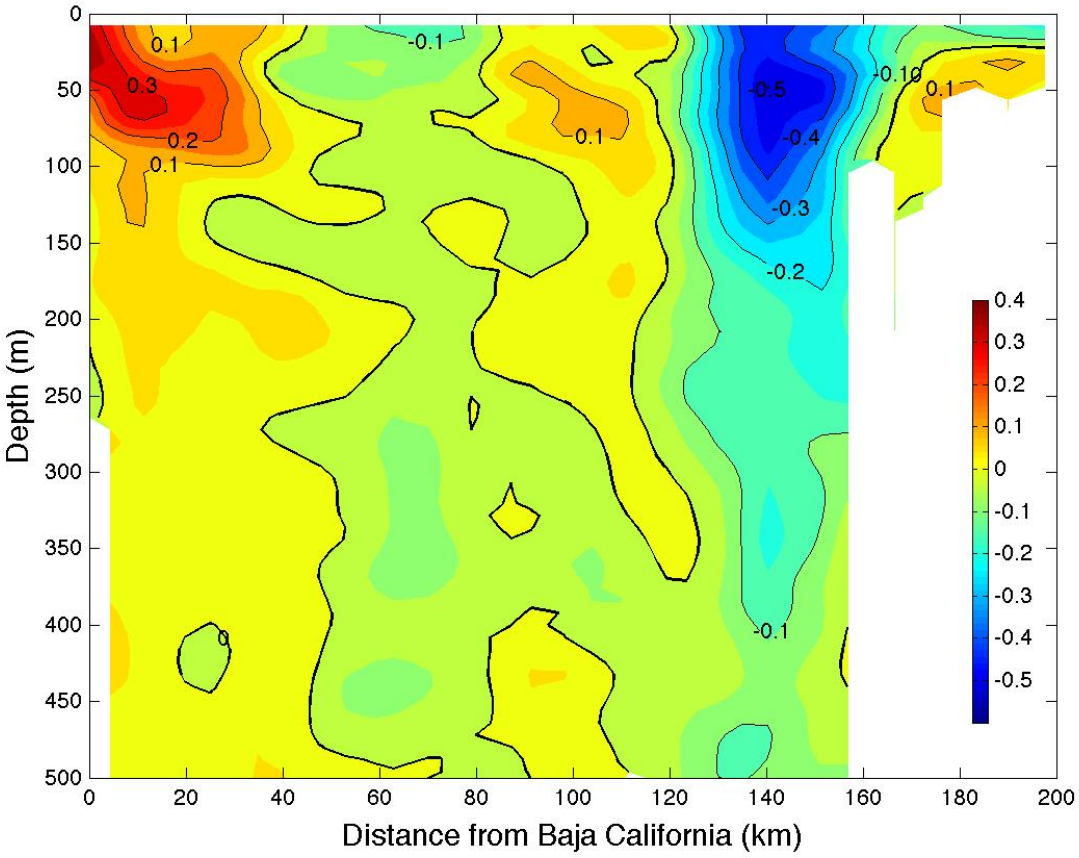

Figure 5. *Flow into the Gulf of California across the Pescadero Basin section.* Contour interval is 0.1 m/s. The black line is the zero isotach. Positive flow is in the direction of 339.5°T. Data include both SADCP and LADCP observations.

Figura 5. *Flujo en la entrada del Golfo de California a través de la sección de la Cuenca Pescadero.* El intervalo de contorno es de 0.1 m/s. La línea negra gruesa es la isotáca de cero. Flujo positivo está en la dirección de 339.5°T. Datos incluyen observaciones tanto del SADCP como del LADCP.

Hydrographic Patterns around the Southern coast of Baja California

Figure 6 shows a chart of the distribution of salinity at 50 dbars along the southern coast of Baja California. Salinities increased from the Pacific Ocean into the Gulf of California, with highest salinities (>34.9) found along the Pescadero Basin section (Figure 4b) at 23.4°N. These high salinities represent Gulf of California waters, and their location would suggest a southward flow of the waters along Baja California.

The observed SADCP currents at 50 m are shown in Figure 7 and suggest a more complex pattern of flow such that the high salinity water may have recirculated anticyclonically across the Pescadero Basin. Currents swept eastward around the southern tip of Baja California, at 109.5°W split and diverged with the offshore flow directed southeastward and the flow over the slope directed to the northeast. Along the next section to the west, currents were weak and directed westward, but along 23.25°N currents over the outer slope resumed and were directed into the Gulf. The Pescadero section indicated strong northward flow along the Baja California slope, which appeared to take the currents to the east of the 23.75°N section, where the flow was much reduced. The strongest currents had speeds of 0.2-0.3 m/s.

Patrones hidrográficos alrededor de la costa meridional de Baja California

En la Figura 6 se muestra un diagrama de la distribución de la salinidad a 50 dbar a lo largo de la costa sur de Baja California. Las salinidades aumentaron desde el Pacífico hacia el Golfo de California, con salinidades más altas (>34.9) a lo largo de la sección de la Cuenca Pescadero (Figura 4b) 23.4°N. Estas altas salinidades representan las aguas del Golfo de California, y su ubicación sugiere un flujo hacia el sur de las aguas a lo largo de Baja California.

Las corrientes observadas por el SADCP a 50 m en la Figura 7 sugirieron un patrón más complejo del flujo, de tal forma que el agua de alta salinidad pudo haber recirculado anticiclónicamente en la cuenca Pescadero. Las corrientes fluyeron hacia el este alrededor de la punta sur de la península, a 109.5°W se separaron y divergieron con un flujo hacia fuera de la costa en dirección hacia el sureste, y el flujo sobre la pendiente dirigiéndose al noreste. A lo largo de la parte oeste de sección próxima, las corrientes fueron débiles y con dirección hacia el oeste, pero a lo largo de 23.25°N las corrientes sobre la pendiente externa reanudaron y se dirigieron hacia dentro del Golfo. La sección de Pescadero, a lo largo de la pendiente de Baja California, mostró un flujo intenso hacia el norte, el cual pareció tomar las corrientes hacia el este de la sección de 23.75°N, donde el flujo se redujo considerablemente. Las corrientes más fuertes tuvieron velocidades de 0.2 a 0.3 m/s.

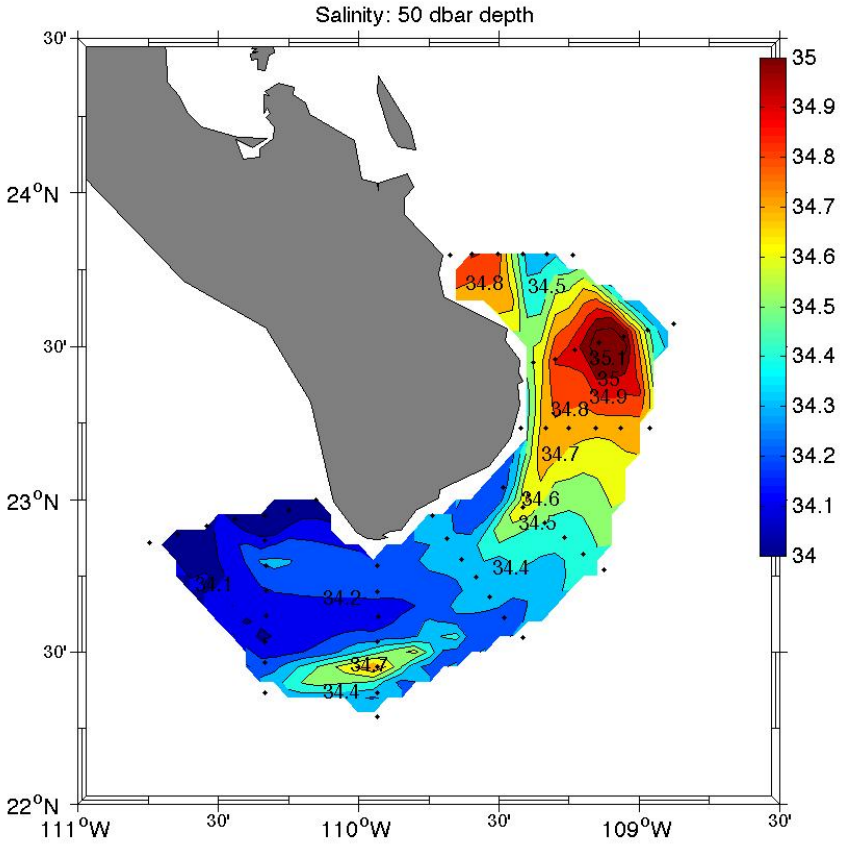

Figure 6. *Salinity on the 50 dbar surface.* Contour interval is ΔS=0.1. Black dots indicate station positions.

Figura 6. *Distribución salinidad sobre la superficie de 50 dbar.* El Intervalo de contorno es ΔS=0.1. Los puntos negros indican las posiciones de la estación.

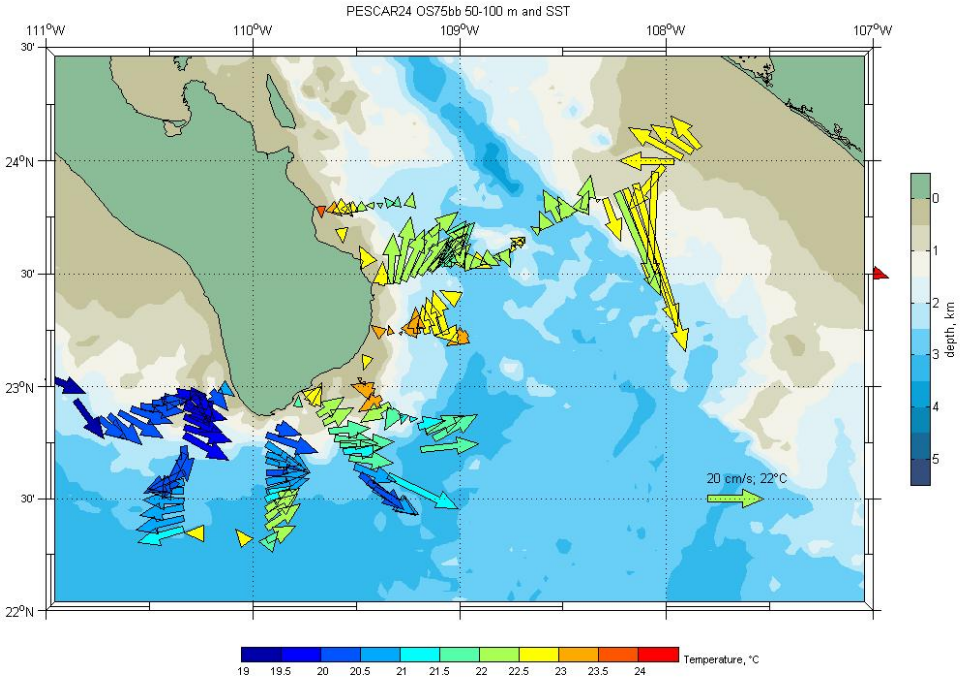

Figure 7: *Shipboard Acoustic Doppler Current Profiler (SADCP) results from the PESCAR cruise of April 2013.* The arrows are current vectors for currents averaged between 50 and 100 m. The colors of the current vectors reflect the sea surface temperature as measured (nominally at 3 meters) by the ship's underway data acquisition system (UDAS).

Figura 7: *Resultados del Perfilador de Corrientes Acústico Doppler a bordo del buque (SADCP) del crucero PESCAR en abril de 2013.* Las flechas son los vectores de las corrientes promediadas entre 50 y 100 metros. Los colores de los vectores indican la temperatura superficial del mar medida (nominalmente a 3 m) por el Sistema de Adquisición de Datos en Curso (UDAS).

Pacific Coast section

Water properties along the 1000 m isobath from the northwestern corner of Pescadero Basin (station 22, Figure 1) to 35°25'N (station 77, Figure 2) are shown in Figure 8. Isotherms (Figure 8a) had shoaled from south to north, reflecting the presence of colder waters to the north, with largest overall pressure change, about 300 dbar, associated with the 7-11°C isotherms. At a distance of 1000 km (28°N), a 200 m thick isostad occurred between the 10°C and 11°C isotherms.

A near surface salinity minimum (Figure 8b) was due to the subduction of fresh southward flowing waters near the surface. Beneath the salinity minimum, a deeper salinity maximum is seen in the southern half of the section. The salinity maximum was quite shallow at the southern extreme (two occurred, one at about 50 m and the other at 200 m, with S>34.7). At a distance of 500 km the salinity maximum was reduced to S=34.6, and at 750 km the maximum salinity was S=34.5 and located at 300 m depth.

Density surfaces (Figure 8c) sloped downward to the south in the upper 500 m: e.g., the 26.5 kg/m^3 isopycnal was about 100 dbar deeper at the southern boundary.

Near surface oxygen values increased from 200 µmol/kg at the southern boundary to 250 µmol/kg in the north (Figure 8d). The lower boundary of a very strong oxycline, 25 µmol/kg, was 100 dbar deep at the southern boundary and its pressure increased to 400 dbar at the northern boundary. A deep minimum in dissolved oxygen (<5 µmol/kg) extended to 750 km at 600 dbars.

Sección de la costa del Pacífico

Las propiedades del agua a lo largo de la isobata de 1000 m, desde la parte noroeste de la cuenca del Pescadero (estación 22, Figura 1) hasta 35° 25'N (estación 77, Figura 2) se muestran en la Figura 8. Las isotermas (Figura 8a) mostraron un ascenso de sur a norte, lo que refleja la presencia de aguas más frías al norte, con el mayor cambio de presión en general, alrededor de los 300 dbar, asociado con las isotermas entre 7-11°C. A 1000 km de distancia (28°N), una "isostad" de 200 m de grosor se produjo entre las isotermas de 10°C y 11°C.

El mínimo de salinidad cerca de la superficie (Figura 8b) fue debido a la subducción de las aguas frescas fluyendo hacia el sur cerca de la superficie. Debajo del mínimo de salinidad, un máximo de salinidad más profundo se observó en la mitad sur de la sección. El máximo superficial fue bastante somero en el extremo sur (ocurrieron dos, uno cerca de 50 m y el otro a 200 m, con S>34,7). A una distancia de 500 km la salinidad máxima se redujo a S=34.6, y a 750 km la salinidad máxima fue de S=34.5 situada a 300 m de profundidad.

Las superficies de densidad (Figura 8c) están inclinadas hacia abajo al sur en los primeros 500 m: por ejemplo, la isopícna de 26.5 kg/m^3 fue aproximadamente 100 dbar más profunda en la frontera sur.

Cerca de la superficie los valores de oxígeno superficial incrementaron, de 200 µmol/kg en la frontera sur a 250 µmol/kg en el norte (Figura 8d). El límite inferior de una oxíclina muy fuerte, 25 µmol/kg, fue de 100 dbar de profundidad en la frontera sur y su presión incrementó a 400 dbar en al norte. El mínimo profundo de oxígeno disuelto (<5 µmol/kg) se extendió a 750 km a 600 dbar.

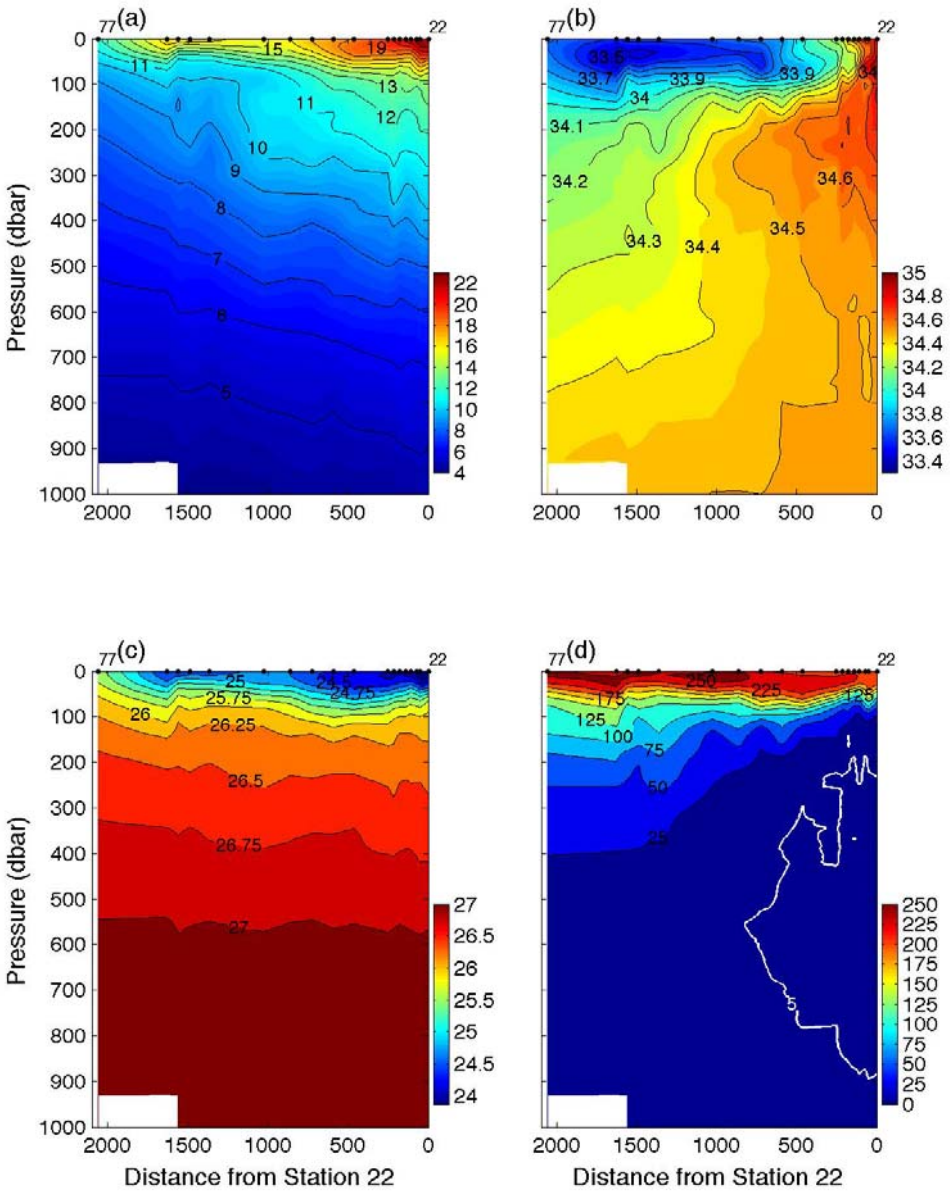

Figure 8. *Water properties along the 1000 m isobath from Pescadero Basin (Station 22) to San Diego (Station 77).* **(a)** Temperature, °C. Contour interval is 1°C. **(b)** Salinity. Contour interval is 0.1. **(c)** Density anomaly, kg/m^3. Contour interval is 0.25 kg/m^3. **(d)** Dissolved oxygen, µmol/kg. Contour interval is 25 µmol/kg, except 5 µmol/kg is white.

Figura 8. *Propiedades del agua a lo largo de la isobata de 1000 m desde al Cuenca Pescadero (estación 22) hasta San Diego (estación 77).* **(a)** Temperatura, °C. El intervalo de contorno es de 1°C. **(b)** La salinidad. El intervalo de contorno es de 0.1. **(c)** Anomalía de la densidad, kg/m^3. El intervalo de contorno es 0.25 kg/m^3. **(d)** Oxígeno disuelto, µmol/kg. Intervalo de contorno es de 25 µmol/kg, excepto 5 µmol/kg en blanco.

Tabulated Data

Tables of data can be found in this report's appendices, as follows:

1) Appendix 1 contains the List of Participants.

2) Appendix 2 gives the laboratory salinometer results.

3) Appendix 3 lists the hydrographic data collected during the PESCAR24 cruise of April 2013. The table therein is a chronological listing of the hydrographic data collected at each CTD station during the PESCAR24 cruise of April 2013. Data are given for standard pressures, except that the last line of data for each site is the deepest pressure for that CTD cast. The surface pressure, listed as 0 dbar, is actually 1 dbar. Salinities have been adjusted according to the calibration corrections determined from the collected salinity water samples. The time listed for each station is the beginning (UT) of the CTD cast. Units of geopotential anomaly ($\Delta\Phi$), potential density (σ_θ), and potential spiciness (π_θ) are J kg^{-1}, kg m^{-3}, and kg m^{-3}, respectively.

4) Appendix 4 gives a chronological listing of the results of the nutrient analysis of the water samples collected from the Niskin bottles tripped at each hydrographic station during the PESCAR24 cruise of April 2013.

5) Appendix 5 shows the standard command file used for LADCP data collection during the PESCAR24 cruise of April 2013.

6) Appendix 6 contains velocity profiles and tables of velocity data collected by the shipboard ADCPs aboard the *R/V Point Sur* and the lowered ADCP mounted on the CTD cage during the PESCAR24 cruise of April 2013.

Datos tabulados

Las Tablas de datos se encuentran en los apéndices del presente informe, como sigue:

1) EL Apéndice 1 contiene la lista de participantes.

2) El Apéndice 2 da los resultados de laboratorio del salinómetro.

3) En el Apéndice 3 se enumeran los datos hidrográficos recopilados durante el crucero PESCAR24 de abril de 2013. La tabla en sí es un listado cronológico de los datos hidrográficos colectados en cada estación del CTD durante el crucero PESCAR24 de abril de 2013. Los datos están dados a presiones estándar, excepto que el último dato para cada sitio es la presión más profunda para el lance del CTD. La presión en la superficie, catalogada como 0 dbar, es en realidad 1 dbar. Las salinidades han sido ajustadas de acuerdo a las correcciones de calibración determinadas a partir de las muestras de agua colectadas. El tiempo listado para cada estación es al inicio (UT) de cada lance de CTD. Las unidades de anomalía geopotencial ($\Delta\Phi$), densidad potencial (σ_θ), y "spiciness" potencial (π_θ) están J/kg, kg/m^3, y kg/m^3, respectivamente.

4) En el Apéndice 4 se da un listado cronológico de los resultados de los análisis de nutrientes de las muestras de agua colectadas de las botellas Niskin activadas en cada estación hidrográfica durante el crucero de PESCAR24 de abril de 2013.

5) El Apéndice 5 muestra el archivo de comandos estándar utilizado para la colección de datos LADCP durante el crucero de PESCAR24 de abril de 2013.

6) El Apéndice 6 contiene perfiles de velocidad y tablas de velocidad datos

7) Appendix 7 lists the XBT Data collected during the PESCAR24 cruise of April 2013. A contour plot of the XBT section from the tip of Baja California to San Diego, California, is also presented.

8) Appendix 8 lists the meteorological and surface oceanographic conditions at the start of each hydrographic station as measured by the underway data acquisition system (UDAS) of the *R/V Point Sur* during the PESCAR24 cruise of April 2013.

9) Appendix 9 lists the marine meteorological observations made by the ship's officers every four hours and recorded in the ship's log book during the PESCAR24 cruise of April 2013. Observations included wind speed and direction, wave and swell height and direction, and cloudiness.

colectados por los ADCPs a bordo del *R/V Point Sur* y del ADCP montado sobre la jaula del CTD durante el crucero de PESCAR24 de abril de 2013.

7) En el Apéndice 7 se muestran los datos del XBT colectados durante el crucero PESCAR24 de abril de 2013. También se presentan contornos de la sección del XBT desde la punta de la península de Baja California a San Diego, California.

8) En Apéndice 8 se presentan las condiciones oceanográficas y meteorológicas superficiales al inicio de cada estación hidrográfica, como fue medido por el Sistema de Adquisición de Datos en Curso (UDAS) de la *R/V Point Sur* en el crucero PESCAR24 de abril de 2013.

9) En el Apéndice 9, se enumeran las observaciones meteorológicas obtenidas por oficiales del buque cada cuatro horas y registrados en la bitácora del buque durante el crucero PESCAR24 de abril de 2013. Las observaciones incluyen la velocidad y dirección del viento, altura de dirección de las olas y la nubosidad.

Acknowledgements

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Agradecimientos

El financiamiento a estas mediciones fue proporcionado por la NSF Grant OCE 1237407. El capitán y la tripulación de *R/V Point Sur*, fueron un gran apoyo y en gran parte se comparte con ellos el éxito de este crucero. Asistencia especial fue proporcionada por el director de MLML, Jim Harvey, del Superintendente de Operaciones Marinas Stewart Lamerdin, y del Técnico Marino Stian Alesandrini. También se proporcionó un apoyo crucial por el Departamento de Investigación de la NPS por Dean Jeff Paduan y del Departamento de Oceanografía por Peter Chu. Mientras se realizaba este reporte, Rubén Castro de la UABC, estuvo en la NPS apoyado por una beca sabática de CONACyT. Finalmente, Daniel Rocha en la Embajada de Estados Unidos en la ciudad de México, Nora I. Durán-Meza de la Secretaría de Relaciones Exteriores (SRE) de México, y el Prof. Reginaldo Durazo en UABC proporcionaron asistencia importante en la obtención de autorizaciones necesarias para el crucero.

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Appendix 1. **Apéndice 1**

Table 1. *Cruise Participants*
Tabla 1. *Participantes del crucero*

Scientist/Científico	Duties/Deberes	Affiliation/Afiliacion
Curt Collins (Co-Chief Sci.)	Physical Oceanography	Naval Postgraduate School *and* MLML
Tarry Rago	Physical Oceanography	
Ruben Castro-Valdez (Co-Jefe Sci.)	Oceanografía Fisica	Universidad Autónoma de Baja California
Luis Felipe Navarro-Olache	Oceanografía Física	
Eduardo Santamaría-del-Angel	Oceanografía Biológica	
Carlos Andres Valverde-Kaliseh	Oceanografía Física	
Rene Gabriel Navarro-Labastida	Oceanografía Física	
Maria Fernanda Gracia-Escobar	Oceanografía Biológica	
Erika Lee-Sanchez	Oceanografía Física	
Ashley Wheeler	Physical Oceanography	Moss Landing Marine Laboratories (MLML)

Figure 9. *Science party on the fantail of R/V Point Sur, 20 April 2013*. Photo courtesy of Tara Pastuszek.
Figura 9. *Grupo científico en la popa de R/V Point Sur, 20 de abril de 2013*. Foto cortesía de Tara Pastuszek.

Appendix 2. **Apéndice 2**

Table 2: *List of results of measurements of conductivity/salinity for Niskin Bottle water samples collected during the PESCAR24 cruise of April 2013 and used for calibration of the two CTD conductivity sensors.* The results are listed chronologically in the order in which the water samples were collected (namely, by CTD cast). Where water samples were collected at multiple depths of a given CTD cast, the results are listed from shallowest to deepest bottle sample. Measured salinometer results are listed as "true" results in the table. The two columns farthest right give the conductivity differences between the measured salinometer ("true") conductivities and those measured by the conductivity sensors aboard the CTD. These values vs. CTD cast were used to adjust the CTD conductivities (and therefore the derived CTD salinities) to their "true" values. Three different salinometers were used to measure the water sample conductivities, and are indicated in the table as follows: Guildline Portasal = no background shading, NPS Guildline Autosal 8400B = blue background shading, and MBARI Guildline Autosal 8400B = orange background shading.

Tabla 2: *Lista de resultados de las mediciones de conductividad/salinidad de las muestras de las Botellas Niskin recopilados durante el crucero de PESCAR24 de abril de 2013 y utilizadas en la calibración de los sensores de conductividad CTD.* Los resultados se enumeran cronológicamente en el orden en el cual se recolectaron las muestras de agua (es decir, por lance de CTD). Donde las muestras de agua fueron colectadas a varias profundidades, para un lance de CTD dado, los resultados aparecen de la muestra superficial a la más profunda. Resultados de las mediciones del salinómetro aparecen como resultados "verdaderos" en la tabla. Las dos columnas más lejanas de la derecha, dan las diferencias de conductividad entre las conductividades ("true") salinómetro medidos y los medidos por los sensores de conductividad del CTD a bordo. Estos valores vs lance de CTD fueron utilizados para ajustar la conductividad del CTD (y por lo tanto la deriva del CTD) a sus valores "verdaderos". Tres salinometers diferentes fueron utilizados para medir la conductividad de la muestra de agua y están indicados en la tabla de la siguiente manera: Guildline Portasal = fondo no sombreado, NPS Guildline Autosal 8400B = fondo azul sombreado y MBARI Guildline Autosal 8400B = fondo naranja sombreado.

CTD Cast	Niskin Bottle	Pressure (dbar)	True Salinity	True Conductivity (S/m)	CTD Primary Conductivity (S/m)	CTD Secondary Conductivity (S/m)	Primary Conductivity Difference (S/m) [True-CTD]	Secondary Conductivity Difference (S/m) [True-CTD]
03	4	124.435	34.731	3.9733576	3.970206	3.973608	0.0031516	-0.00025039
04	3	415.718	34.547	3.6205604	3.617186	3.620709	0.0033744	-0.00014859
05	3	676.495	34.512	3.4444274	3.441128	3.444340	0.0032994	0.00008740

CTD Cast	Niskin Bottle	Pressure (dbar)	True Salinity	True Conductivity (S/m)	CTD Primary Conductivity (S/m)	CTD Secondary Conductivity (S/m)	Primary Conductivity Difference (S/m) [True-CTD]	Secondary Conductivity Difference (S/m) [True-CTD]
08	3	912.504	34.524	3.3359848	3.332716	3.335970	0.0032688	0.00001481
09	3	1777.104	34.616	3.1803804	3.177339	-----	0.0030414	-----
10	5	807.722	34.515	3.3727105	3.374352	3.367173	-0.0016415	0.00553751
10	3	2808.284	34.663	3.1541309	3.151184	3.154508	0.0029469	-0.00037714
10	3	2808.284	34.663	3.1541578	3.151184	3.154508	0.0029738	-0.00035022
11	3	2733.060	34.664	3.1516242	3.148534	3.151270	0.0030902	0.00035419
11	3	2733.060	34.666	3.1517669	3.148534	3.151270	0.0032329	0.00049686
11	3	2733.060	34.663	3.1515223	3.148534	3.151270	0.0029883	0.00025228
12	6	605.630	34.490	3.4904882	3.487356	3.490120	0.0031322	0.00036822
12	4	1514.284	34.594	3.2108160	3.207859	3.210605	0.0029570	0.00021097
13	3	1598.270	34.603	3.1999610	3.196963	3.199857	0.0029980	0.00010399
14	6	1009.083	34.526	3.3059509	3.302967	3.305646	0.0029839	0.00030485
14	6	1009.083	34.525	3.3058648	3.302967	3.305646	0.0028978	0.00021877
14	5	1514.820	34.590	3.2160080	3.213145	3.215769	0.0028630	0.00023903
14	4	2024.154	34.638	3.1572592	3.154303	3.156952	0.0029562	0.00030719
14	3	2282.818	34.654	3.1440810	3.141129	3.143835	0.0029520	0.00024597
15	4	1513.869	34.593	3.2120867	3.209226	3.211861	0.0028607	0.00022573
15	3	2171.668	34.647	3.1481864	3.145258	3.147948	0.0029284	0.00023842
17	5	605.747	34.511	3.5072970	3.504274	3.506918	0.0030230	0.00037899
17	3	2346.034	34.657	3.1429725	3.140141	3.142762	0.0028315	0.00021054
18	5	147.904	34.775	4.0932127	4.090335	4.093050	0.0028777	0.00016274
18	1	1839.448	34.617	3.1808090	3.178058	3.180710	0.0027510	0.00009896
19	1	1362.417	34.581	3.2273245	3.224437	3.227242	0.0028875	0.00008252
22	3	708.202	34.518	3.4337237	3.430845	3.433516	0.0028787	0.00020769
22	1	1008.355	34.539	3.3159415	3.313116	3.315928	0.0028255	0.00001349
23	1	1008.418	34.536	3.3202157	3.317343	3.320104	0.0028727	0.00011166
24	1	1008.667	34.538	3.3023083	3.299733	3.302571	0.0025753	-0.00026266
25	1	1009.114	34.538	3.3089050	3.306054	3.308889	0.0028510	0.00001601
26	8	152.902	34.796	4.0291419	4.026117	4.028941	0.0030249	0.00020092
26	4	501.155	34.571	3.6342953	3.631078	3.633931	0.0032173	0.00036430
26	1	1008.533	34.533	3.3092153	3.306324	3.309169	0.0028913	0.00004631

CTD Cast	Niskin Bottle	Pressure (dbar)	True Salinity	True Conductivity (S/m)	CTD Primary Conductivity (S/m)	CTD Secondary Conductivity (S/m)	Primary Conductivity Difference (S/m) [True-CTD]	Secondary Conductivity Difference (S/m) [True-CTD]
27	12	1.867	34.427	4.8599084	4.856728	-----	0.0031804	-----
27	3	605.788	34.506	3.5087772	3.505998	-----	0.0027792	-----
28	1	1008.877	34.531	3.2995641	3.296757	3.299506	0.0028071	0.00005814
29	1	1008.098	34.533	3.2966135	3.293915	3.296661	0.0026985	-0.00004750
30	1	1007.758	34.531	3.3014000	3.298612	3.301331	0.0027880	0.00006904
31	1	1007.486	34.527	3.3030080	3.300581	3.303338	0.0024270	-0.00032997
36	2	1008.475	34.536	3.3004890	3.297884	3.300562	0.0026050	-0.00007299
37	1	1006.731	34.537	3.2968659	3.293895	3.296508	0.0029709	0.00035795
38	1	1010.094	34.533	3.3009913	3.298299	3.300494	0.0026923	0.00049732
39	1	1009.141	34.530	3.2947148	3.292358	3.295006	0.0023568	-0.00029121
41	1	1006.207	34.527	3.3114078	3.308901	3.311552	0.0025068	-0.00014421
42	3	804.703	34.514	3.3706966	3.367626	3.370127	0.0030706	0.00056956
42	2	1008.508	34.532	3.3124395	3.309483	3.312014	0.0029565	0.00042548
43	4	46.641	34.419	4.4447150	4.442050	4.444909	0.0026650	-0.00019400
43	1	1007.284	34.532	3.3067609	3.304036	3.306623	0.0027249	0.00013789
44	4	503.266	34.522	3.5900916	3.586659	3.589856	0.0034326	0.00023559
44	1	908.245	34.526	3.3336224	3.330656	3.333142	0.0029664	0.00048043
45	1	578.785	34.512	3.4872261	3.484320	3.487169	0.0029061	0.00005706
46	2	55.130	34.282	4.3169082	4.314095	4.316436	0.0028132	0.00047219
47	2	176.290	34.718	3.9719847	3.968929	3.971485	0.0030557	0.00049975
48	5	1007.715	34.537	3.3033492	3.300490	3.302985	0.0028592	0.00036418
49	2	1008.845	34.530	3.3097556	3.306809	3.309333	0.0029466	0.00042255
50	2	1006.799	34.525	3.3095608	3.306805	3.309303	0.0027558	0.00025775
51	1	1008.961	34.525	3.3034276	3.300347	3.302866	0.0030806	0.00056157
53	1	1006.219	34.541	3.3110927	3.307981	3.310425	0.0031117	0.00066773
57	1	1009.929	34.536	3.2945463	3.291435	3.293882	0.0031113	0.00066432
58	1	1007.950	34.532	3.3072824	3.304688	3.307119	0.0025944	0.00016339
59	1	1009.066	34.536	3.2984414	3.295678	3.298163	0.0027634	0.00027840
60	3	404.212	34.558	3.6847507	3.682265	3.684612	0.0024857	0.00013868
63	3	605.858	34.506	3.4965902	3.494424	3.496091	0.0021662	0.00049924
64	1	1008.933	34.544	3.2919899	3.289018	3.291320	0.0029719	0.00066989

CTD Cast	Niskin Bottle	Pressure (dbar)	True Salinity	True Conductivity (S/m)	CTD Primary Conductivity (S/m)	CTD Secondary Conductivity (S/m)	Primary Conductivity Difference (S/m) [True-CTD]	Secondary Conductivity Difference (S/m) [True-CTD]
65	1	952.558	34.536	3.3048582	3.301812	3.304160	0.0030462	0.00069824
66	1	1008.856	34.540	3.2945321	3.291699	3.294050	0.0028331	0.00048205
67	1	1009.307	34.534	3.2993514	3.296736	3.299116	0.0026154	0.00023539
68	8	151.157	34.536	3.9290968	3.926049	3.928405	0.0030478	0.00069179
68	1	1056.942	34.533	3.2802130	3.278034	3.280277	0.0021790	-0.00006399
69	1	1011.395	34.517	3.2865164	3.283891	3.286156	0.0026255	0.00036045
70	1	1006.059	34.505	3.2945655	3.291607	3.293889	0.0029585	0.00067650
71	3	604.817	34.438	3.4382699	3.435602	3.437716	0.0026679	0.00055393
72	1	1007.274	34.508	3.2677377	3.264746	3.266964	0.0029917	0.00077370
73	12	2.864	33.601	4.2390967	4.236117	4.238296	0.0029797	0.00080074
73	3	604.391	34.363	3.4017689	3.399257	3.401285	0.0025119	0.00048389
73	3	604.391	34.363	3.4017422	3.399257	3.401285	0.0024852	0.00045718
73	3	604.391	34.365	3.4019710	3.399257	3.401285	0.0027140	0.00068597
73	3	604.391	34.365	3.4019443	3.399257	3.401285	0.0026873	0.00065926
73	3	604.391	34.369	3.4022763	3.399257	3.401285	0.0030193	0.00099130
73	3	604.391	34.365	3.4018998	3.399257	3.401285	0.0026428	0.00061475
73	3	604.391	34.364	3.4018152	3.399257	3.401285	0.0025582	0.00053019
73	1	1006.999	34.491	3.2669581	3.263903	3.266064	0.0030551	0.00089410
74	1	1009.679	34.482	3.2731371	3.270338	3.272572	0.0027991	0.00056511
74	1	1009.679	34.482	3.2730833	3.270338	3.272572	0.0027453	0.00051132
74	1	1009.679	34.480	3.2729552	3.270338	3.272572	0.0026172	0.00038325
74	1	1009.679	34.478	3.2727674	3.270338	3.272572	0.0024294	0.00019540
74	1	1009.679	34.483	3.2732327	3.270338	3.272572	0.0028947	0.00066073
74	1	1009.679	34.481	3.2730346	3.270338	3.272572	0.0026966	0.00046265
74	1	1009.679	34.479	3.2728442	3.270338	3.272572	0.0025062	0.00027225
75	12	1.743	33.617	4.3442997	4.341940	4.344111	0.0023597	0.00018869
75	1	1009.051	34.477	3.2765602	3.273793	3.276056	0.0027672	0.00050420
76	12	1.732	33.530	4.2826820	4.279724	4.282026	0.0029580	0.00065601
76	1	928.087	34.469	3.2762570	3.273862	3.275916	0.0023950	0.00034098

Appendix 3. **Apéndice 3**

Table 3: *List at standard pressures of hydrographic data collected during the PESCAR24 cruise of April 2013.* Stations are in chronological order. For each cast, the surface pressure (listed as 0 dbar) is actually 1 dbar, while the last pressure is the deepest pressure of the cast. Salinities have been adjusted according to the calibration corrections determined from the collected salinity water samples. The time listed for each station is the beginning (<*mm/dd/yyyy, hhmm*> UTC) of the CTD cast. Units of geopotential anomaly ($\Delta\Phi$), potential density (σ_θ), and potential spiciness (π_θ) are $m^2\ s^{-2}$, kg m^{-3}, and kg m^{-3}, respectively.

Tabla 3: *Lista de presiones estándar de los datos hidrográficos colectados durante el crucero PESCAR24 de abril de 2013.* Las estaciones ("Station") están en orden cronológico. Para cada lance, la presión superficial (listada como 0 dbar) es en realidad 1 dbar, mientras que la última presión es la presión más profunda del lance. Las salinidades se han ajustado de acuerdo a las correcciones de calibración determinadas a partir de las muestras de agua de salinidad colectada. El tiempo listado para cada estación ("Date") es del inicio del lance del CTD (< *dd/mm/aaaa, hhmm* > UTC). La unidades de anomalía geopotencial ($\Delta\Phi$), densidad potencial (σ_θ), y "spiciness" potencial (π_θ) son m^2/s^2, kg/m^3, y kg/m^3, respectivamente.

Station: 0 **Date:** 4/19/2013, 0008 **Lat.:** 23° 09.81 N **Long.:** 106° 33.48 W

P(dbar)	T(°C)	S	O_2(μm/kg)	$\Delta\Phi$	σ_θ	π_θ
0	24.039	34.965	207.8	0.043	23.604	4.435
10	24.001	35.002	209.6	0.426	23.643	4.451
20	22.562	34.837	221.6	0.841	23.936	3.903
30	18.573	34.723	154.4	1.166	24.919	2.739
50	16.557	34.770	76.2	1.716	25.444	2.283
52	16.151	34.741	65.6	1.766	25.516	2.166

Station: 1 **Date:** 4/19/2013, 1224 **Lat.:** 24° 08.98 N **Long.:** 107° 39.22 W

P(dbar)	T(°C)	S	O_2(μm/kg)	$\Delta\Phi$	σ_θ	π_θ
0	22.427	34.828	214.0	0.039	23.967	3.859
10	22.435	34.828	215.3	0.393	23.965	3.861
20	22.142	34.789	215.5	0.787	24.019	3.747
30	18.211	34.451	193.6	1.128	24.801	2.438
42	15.921	34.654	85.7	1.460	25.501	2.047

Station: 2 **Date:** 4/19/2013, 1342 **Lat.:** 24° 05.12 N **Long.:** 107° 46.68 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.272	34.801	211.2	0.039	23.990	3.794
10	22.282	34.805	211.2	0.391	23.991	3.800
20	22.287	34.831	211.0	0.782	24.010	3.820
30	19.331	34.855	150.2	1.135	24.827	3.034
50	14.647	34.626	57.2	1.640	25.762	1.741
72	13.924	34.848	30.5	2.099	26.088	1.758

Station: 3 **Date:** 4/19/2013, 1503 **Lat.:** 24° 02.41 N **Long.:** 107° 52.22 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.473	34.919	214.2	0.039	24.023	3.942
10	22.466	34.916	214.2	0.388	24.023	3.937
20	22.474	34.918	213.5	0.777	24.023	3.940
30	20.588	34.936	201.3	1.154	24.558	3.429
50	16.129	34.854	75.3	1.717	25.608	2.248
75	13.738	34.825	23.4	2.229	26.109	1.701
100	12.592	34.767	8.1	2.681	26.296	1.424
125	11.988	34.730	3.4	3.104	26.385	1.278
150	11.705	34.719	3.0	3.515	26.430	1.214
165	11.429	34.709	1.9	3.757	26.474	1.155

Station: 4 **Date:** 4/19/2013, 1621 **Lat.:** 23° 59.83 N **Long.:** 107° 57.68 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.497	34.928	215.4	0.039	24.023	3.956
10	22.497	34.928	214.9	0.388	24.024	3.955
20	22.471	34.928	213.5	0.776	24.031	3.947
30	22.369	34.926	212.0	1.164	24.060	3.916
50	17.806	34.871	108.6	1.823	25.223	2.661
75	13.521	34.796	29.1	2.385	26.131	1.634
100	12.039	34.741	6.0	2.820	26.383	1.296
125	11.786	34.722	4.5	3.231	26.417	1.233
150	11.469	34.704	2.8	3.636	26.462	1.159
200	10.955	34.672	2.4	4.420	26.533	1.040
250	10.457	34.650	2.5	5.171	26.605	0.933
300	9.823	34.608	1.9	5.894	26.682	0.791
400	8.566	34.553	1.8	7.250	26.843	0.543
418	8.249	34.544	1.8	7.476	26.885	0.487

Station: 5 **Date:** 4/19/2013, 1751 **Lat.:** 23° 57.14 N **Long.:** 108° 03.11 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.486	34.870	213.2	0.039	23.982	3.908
10	22.476	34.878	214.6	0.392	23.991	3.911
20	22.544	34.941	215.9	0.782	24.021	3.978
30	22.569	34.969	214.8	1.170	24.035	4.006
50	18.720	34.889	177.8	1.879	25.010	2.903
75	16.888	34.959	117.6	2.552	25.512	2.506
100	13.543	34.756	20.2	3.086	26.097	1.607
125	12.375	34.744	7.5	3.545	26.321	1.362
150	11.586	34.710	3.6	3.964	26.445	1.185
200	11.031	34.676	2.5	4.753	26.522	1.056
250	10.171	34.625	2.3	5.501	26.635	0.863
300	9.845	34.605	2.1	6.217	26.676	0.792
400	8.434	34.547	1.9	7.559	26.859	0.518
500	7.535	34.523	1.8	8.760	26.975	0.365
600	6.836	34.516	1.8	9.876	27.068	0.261
679	6.229	34.509	1.8	10.702	27.143	0.175

Station: 6 **Date:** 4/19/2013, 1929 **Lat.:** 23° 54.32 N **Long.:** 108° 08.61 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.593	34.956	213.8	0.039	24.017	4.005
10	22.575	34.956	213.7	0.388	24.022	3.998
20	19.853	34.838	229.5	0.756	24.678	3.159
30	19.232	35.212	210.7	1.058	25.125	3.282
50	18.443	35.228	182.6	1.602	25.339	3.093
75	17.404	35.198	171.0	2.236	25.572	2.813
100	16.224	35.133	136.7	2.819	25.802	2.483
125	13.632	34.811	23.7	3.328	26.121	1.667
150	12.820	34.793	12.0	3.791	26.273	1.488
200	11.506	34.711	2.5	4.619	26.462	1.170
250	11.107	34.685	2.1	5.410	26.517	1.076
300	10.415	34.637	2.2	6.179	26.603	0.914
400	9.144	34.572	2.0	7.614	26.767	0.649
500	7.503	34.523	1.8	8.848	26.979	0.360
600	6.779	34.511	1.8	9.959	27.071	0.250
700	6.119	34.509	1.8	10.995	27.157	0.161
730	5.774	34.511	2.1	11.292	27.202	0.119

Station: 7 **Date:** 4/19/2013, 2128 **Lat.:** 23° 51.68 N **Long.:** 108° 14.12 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.770	34.629	215.4	0.039	24.000	3.521
10	21.683	34.653	217.3	0.390	24.043	3.515
20	19.114	35.231	210.7	0.691	25.169	3.267
30	18.796	35.255	194.4	0.966	25.269	3.204
50	18.075	35.224	174.9	1.494	25.427	2.998
75	17.204	35.244	176.2	2.105	25.656	2.800
100	16.706	35.229	174.0	2.679	25.764	2.669
125	15.602	35.101	123.7	3.228	25.920	2.316
150	13.500	34.824	20.6	3.721	26.159	1.649
200	12.313	34.786	10.7	4.610	26.368	1.381
250	11.357	34.715	3.2	5.434	26.494	1.144
300	10.594	34.653	2.4	6.211	26.584	0.958
400	8.836	34.551	2.4	7.629	26.800	0.584
500	7.890	34.520	2.0	8.901	26.920	0.414
550	7.262	34.518	1.8	9.491	27.010	0.322

Station: 8 **Date:** 4/20/2013, 0000 **Lat.:** 23° 49.30 N **Long.:** 108° 19.88 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.498	34.981	213.6	0.038	24.063	3.996
10	22.484	34.983	214.5	0.384	24.069	3.993
20	19.957	35.159	223.5	0.740	24.895	3.432
30	19.290	35.231	221.0	1.027	25.124	3.312
50	18.738	35.253	194.9	1.578	25.283	3.187
75	17.728	35.216	167.4	2.229	25.507	2.906
100	17.217	35.288	193.8	2.820	25.687	2.836
125	16.662	35.234	174.8	3.393	25.779	2.662
150	14.698	34.936	---	3.931	25.993	1.988
200	12.561	34.767	---	4.871	26.305	1.415
250	11.668	34.733	---	5.718	26.451	1.216
300	11.054	34.701	---	6.517	26.539	1.077
400	9.161	34.572	---	7.945	26.764	0.652
500	7.802	34.530	---	9.225	26.942	0.409
600	6.927	34.514	---	10.357	27.054	0.272
700	6.078	34.508	---	11.398	27.162	0.155
800	5.569	34.509	---	12.363	27.227	0.092
900	4.957	34.520	---	13.272	27.308	0.029
915	4.902	34.521	---	13.400	27.316	0.024

Station: 9 **Date:** 4/20/2013, 0312 **Lat.:** 23° 46.58 N **Long.:** 108° 24.72 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.205	35.069	216.0	0.037	24.213	3.980
10	22.199	35.068	215.9	0.370	24.214	3.977
20	21.209	34.982	214.8	0.737	24.424	3.634
30	19.067	35.223	204.2	1.044	25.175	3.248
50	18.610	35.227	186.5	1.590	25.296	3.135
75	17.804	35.215	167.5	2.240	25.489	2.924
100	16.999	35.151	147.5	2.852	25.634	2.679
125	15.178	34.899	95.1	3.420	25.859	2.066
150	13.667	34.840	24.0	3.934	26.137	1.696
200	12.363	34.773	8.4	4.835	26.348	1.381
250	11.672	34.737	4.5	5.675	26.453	1.220
300	10.825	34.689	3.3	6.461	26.571	1.027
400	9.055	34.565	2.5	7.901	26.776	0.629
500	7.837	34.534	1.9	9.178	26.940	0.417
600	6.798	34.513	1.8	10.304	27.070	0.253
700	5.981	34.509	2.1	11.330	27.175	0.144
800	5.440	34.512	3.1	12.278	27.244	0.079
900	5.062	34.520	4.2	13.173	27.296	0.041
1000	4.732	34.526	6.5	14.032	27.339	0.008
1100	4.340	34.539	11.2	14.848	27.393	-0.025
1200	3.981	34.554	16.5	15.616	27.443	-0.050
1300	3.697	34.566	22.9	16.338	27.482	-0.070
1400	3.478	34.576	28.2	17.030	27.512	-0.083
1500	3.183	34.592	34.7	17.695	27.553	-0.099
1750	2.692	34.615	44.9	19.217	27.616	-0.125
1780	2.633	34.618	50.7	19.390	27.624	-0.128

Station: 10 **Date:** 4/20/2013, 0552 **Lat.:** 23° 43.77 N **Long.:** 108° 30.64 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.002	34.946	215.7	0.037	24.176	3.828
10	22.004	34.944	215.4	0.374	24.174	3.827
20	21.993	34.943	214.6	0.748	24.177	3.822
30	18.663	34.669	182.5	1.097	24.855	2.720
50	18.564	35.148	190.8	1.675	25.247	3.062
75	17.302	35.100	148.3	2.327	25.522	2.713
100	14.695	34.670	69.3	2.915	25.787	1.784
125	14.386	34.853	47.1	3.448	25.996	1.858
150	13.512	34.837	20.2	3.935	26.167	1.662
200	12.170	34.772	7.9	4.821	26.384	1.343
250	11.355	34.712	2.9	5.639	26.492	1.142
300	10.797	34.672	2.8	6.423	26.563	1.009
400	9.188	34.574	2.5	7.861	26.761	0.657
500	7.628	34.512	2.2	9.118	26.953	0.370
600	6.731	34.512	1.9	10.244	27.079	0.244
700	5.966	34.510	2.1	11.258	27.177	0.142
800	5.435	34.513	3.0	12.200	27.246	0.080
900	5.144	34.517	4.1	13.104	27.284	0.048
1000	4.704	34.526	7.1	13.972	27.343	0.005
1100	4.301	34.533	12.8	14.783	27.392	-0.033
1200	3.990	34.551	17.4	15.548	27.440	-0.051
1300	3.645	34.566	23.0	16.268	27.487	-0.075
1400	3.473	34.577	27.8	16.957	27.513	-0.083
1500	3.165	34.591	37.3	17.614	27.554	-0.101
1750	2.682	34.616	43.5	19.128	27.618	-0.125
2000	2.260	34.637	57.2	20.497	27.671	-0.145
2500	1.887	34.660	74.1	22.956	27.721	-0.158
2811	1.835	34.663	83.8	24.445	27.730	-0.161

Station: 11 **Date:** 4/20/2013, 0849 **Lat.:** 23° 41.21 N **Long.:** 108° 36.31 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.125	34.980	213.1	0.037	24.168	3.889
10	22.129	34.978	214.3	0.374	24.166	3.889
20	22.130	34.979	214.2	0.749	24.166	3.889
30	19.983	34.886	208.1	1.092	24.681	3.229
50	17.671	34.567	157.0	1.704	25.023	2.393
75	15.645	34.642	77.8	2.381	25.555	1.973
100	14.758	34.796	60.1	2.953	25.870	1.894
125	13.835	34.852	27.1	3.457	26.111	1.740
150	13.009	34.759	9.8	3.928	26.208	1.499
200	12.135	34.764	7.1	4.809	26.385	1.330
250	11.199	34.705	4.3	5.622	26.515	1.108
300	10.716	34.657	3.1	6.394	26.566	0.982
400	9.108	34.566	2.4	7.833	26.768	0.638
500	7.911	34.527	2.0	9.107	26.923	0.422
600	6.891	34.510	2.0	10.257	27.055	0.264
700	6.087	34.506	2.4	11.298	27.159	0.155
800	5.518	34.508	3.2	12.263	27.232	0.086
900	4.976	34.514	5.9	13.164	27.301	0.027
1000	4.557	34.528	9.0	14.006	27.359	-0.010
1100	4.267	34.537	12.9	14.806	27.399	-0.034
1200	3.932	34.555	18.1	15.563	27.449	-0.054
1300	3.685	34.566	23.3	16.284	27.483	-0.071
1400	3.405	34.581	29.4	16.970	27.522	-0.086
1500	3.197	34.591	34.8	17.626	27.551	-0.098
1750	2.713	34.614	52.8	19.149	27.614	-0.124
2000	2.264	34.636	72.7	20.523	27.671	-0.144
2500	1.900	34.659	91.0	22.992	27.720	-0.157
2734	1.837	34.663	95.2	24.113	27.729	-0.160

Station: 12 **Date:** 4/20/2013, 1644 **Lat.:** 23° 38.31 N **Long.:** 108° 41.43 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.386	35.097	213.4	0.037	24.183	4.053
10	22.339	35.096	213.1	0.372	24.196	4.038
20	22.327	35.096	213.4	0.744	24.199	4.034
30	20.840	35.003	221.2	1.109	24.541	3.549
50	18.256	34.885	174.3	1.727	25.123	2.783
75	14.620	34.388	74.5	2.393	25.585	1.549
100	14.122	34.683	42.5	2.957	25.920	1.671
125	13.618	34.811	18.6	3.458	26.124	1.664
150	12.734	34.754	6.4	3.918	26.260	1.441
200	11.992	34.741	4.2	4.784	26.395	1.285
250	11.368	34.719	4.4	5.599	26.495	1.150
300	10.555	34.647	1.9	6.376	26.586	0.947
400	9.208	34.587	2.2	7.810	26.768	0.671
500	7.981	34.534	2.3	9.104	26.911	0.431
600	6.728	34.484	2.9	10.257	27.057	0.222
700	6.036	34.481	3.8	11.301	27.146	0.129
800	5.421	34.493	5.0	12.269	27.231	0.062
900	4.913	34.514	6.9	13.165	27.308	0.019
1000	4.484	34.529	10.0	14.003	27.369	-0.016
1100	4.180	34.542	14.1	14.790	27.412	-0.039
1200	3.877	34.558	19.1	15.535	27.456	-0.058
1300	3.638	34.569	24.2	16.247	27.490	-0.073
1400	3.381	34.581	30.3	16.929	27.525	-0.088
1500	3.159	34.593	36.3	17.579	27.556	-0.100
1710	2.678	34.616	53.9	18.862	27.618	-0.125

Station: 13 **Date:** 4/20/2013, 1903 **Lat.:** 23° 35.91 N **Long.:** 108° 47.26 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.824	34.676	215.9	0.039	24.020	3.572
10	21.888	34.776	215.0	0.385	24.080	3.666
20	21.951	34.823	214.4	0.767	24.098	3.719
30	19.328	34.292	218.1	1.139	24.398	2.601
50	17.058	34.205	154.3	1.795	24.892	1.965
75	15.372	34.620	84.1	2.471	25.599	1.895
100	15.602	34.998	94.1	3.041	25.840	2.238
125	14.095	34.864	36.8	3.559	26.065	1.804
150	13.229	34.804	14.7	4.032	26.199	1.578
200	12.329	34.795	11.1	4.908	26.371	1.391
250	11.477	34.726	4.8	5.728	26.481	1.175
300	10.811	34.693	3.8	6.507	26.577	1.028
400	9.148	34.567	2.6	7.958	26.762	0.646
500	7.854	34.523	2.5	9.244	26.928	0.411
600	6.878	34.490	2.7	10.400	27.042	0.247
700	5.969	34.480	4.0	11.457	27.154	0.120
800	5.482	34.496	4.6	12.428	27.227	0.072
900	4.947	34.510	6.8	13.330	27.301	0.020
1000	4.424	34.529	11.0	14.160	27.375	-0.022
1100	4.048	34.549	15.9	14.930	27.431	-0.046
1200	3.838	34.559	20.0	15.663	27.462	-0.060
1300	3.615	34.570	24.9	16.372	27.493	-0.074
1400	3.374	34.582	30.6	17.047	27.526	-0.089
1500	3.138	34.593	38.2	17.698	27.558	-0.102
1599	2.961	34.603	41.8	18.314	27.583	-0.110

Station: 14 **Date:** 4/20/2013, 2108 **Lat.:** 23° 34.41 N **Long.:** 108° 52.60 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.524	34.412	214.5	0.040	23.903	3.286
10	21.039	34.409	217.4	0.391	24.034	3.149
20	21.001	34.408	217.7	0.778	24.044	3.137
30	19.183	34.304	216.4	1.153	24.444	2.572
50	16.917	34.265	152.6	1.794	24.971	1.977
75	15.351	34.497	94.4	2.471	25.509	1.794
100	15.238	34.921	81.8	3.047	25.862	2.097
125	13.512	34.676	31.8	3.564	26.041	1.537
150	13.110	34.770	17.5	4.040	26.197	1.528
200	12.079	34.765	7.8	4.913	26.396	1.320
250	11.364	34.707	4.6	5.732	26.486	1.139
300	10.591	34.647	2.9	6.510	26.580	0.953
400	9.075	34.546	3.5	7.954	26.758	0.618
500	7.899	34.511	2.8	9.245	26.912	0.408
600	6.876	34.495	2.5	10.395	27.046	0.250
700	6.179	34.500	2.7	11.451	27.143	0.162
800	5.617	34.501	3.5	12.431	27.215	0.092
900	5.059	34.510	5.7	13.352	27.289	0.033
1000	4.619	34.519	9.6	14.205	27.346	-0.010
1100	4.259	34.538	13.1	15.008	27.400	-0.034
1200	3.906	34.556	18.6	15.762	27.452	-0.056
1300	3.648	34.569	23.9	16.475	27.489	-0.072
1400	3.406	34.580	30.0	17.162	27.522	-0.087
1500	3.196	34.591	36.1	17.818	27.550	-0.099
1750	2.655	34.617	54.8	19.333	27.621	-0.126
2000	2.277	34.636	72.9	20.703	27.669	-0.144
2286	1.955	34.655	87.9	22.137	27.711	-0.155

Station: 15 **Date:** 4/20/2013, 2346 **Lat.:** 23° 33.21 N **Long.:** 108° 58.18 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.264	34.401	217.0	0.039	23.966	3.205
10	21.024	34.401	217.4	0.391	24.032	3.138
20	20.948	34.400	217.1	0.777	24.052	3.117
30	18.773	34.318	214.9	1.128	24.559	2.478
50	17.432	34.479	170.3	1.755	25.013	2.267
75	17.751	35.093	149.8	2.437	25.408	2.817
100	14.373	34.590	43.1	3.032	25.794	1.652
125	13.291	34.650	29.0	3.552	26.067	1.472
150	12.553	34.657	10.6	4.025	26.219	1.329
200	12.141	34.766	8.4	4.901	26.385	1.333
250	11.312	34.723	5.7	5.711	26.509	1.142
300	10.433	34.626	3.2	6.484	26.591	0.908
400	9.114	34.537	4.4	7.923	26.745	0.617
500	7.908	34.511	2.8	9.224	26.911	0.409
600	6.906	34.484	3.2	10.383	27.033	0.246
700	6.115	34.484	3.7	11.444	27.139	0.141
800	5.442	34.489	5.2	12.425	27.226	0.061
900	4.994	34.511	6.1	13.335	27.297	0.027
1000	4.619	34.519	9.4	14.189	27.346	-0.010
1100	4.204	34.542	13.5	14.989	27.410	-0.036
1200	3.914	34.556	18.5	15.739	27.451	-0.056
1300	3.621	34.570	24.3	16.451	27.492	-0.074
1400	3.391	34.581	29.8	17.132	27.524	-0.087
1500	3.179	34.591	36.5	17.781	27.553	-0.100
1750	2.687	34.615	54.3	19.299	27.617	-0.125
2000	2.321	34.634	71.1	20.680	27.664	-0.142
2173	2.065	34.648	83.9	21.566	27.696	-0.152

Station: 16 **Date:** 4/21/2013, 0205 **Lat.:** 23° 32.04 N **Long.:** 109° 03.24 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.610	34.391	214.1	0.043	23.583	3.577
10	20.908	34.388	217.8	0.399	24.053	3.097
20	20.805	34.382	218.3	0.783	24.077	3.063
30	20.594	34.361	219.3	1.166	24.118	2.989
50	19.094	35.183	210.7	1.801	25.139	3.224
75	17.715	35.189	165.0	2.464	25.490	2.882
100	14.327	34.557	69.5	3.061	25.779	1.616
125	13.620	34.695	26.2	3.586	26.034	1.574
150	12.858	34.744	10.6	4.058	26.227	1.457
200	11.861	34.687	4.1	4.934	26.377	1.218
250	11.000	34.630	6.0	5.753	26.493	1.013
300	10.451	34.620	3.7	6.530	26.583	0.907
400	8.946	34.530	4.5	7.969	26.766	0.584
500	7.927	34.508	3.0	9.258	26.906	0.410
600	7.069	34.503	2.3	10.427	27.026	0.283
700	6.196	34.503	2.4	11.491	27.143	0.166
800	5.420	34.498	4.7	12.459	27.236	0.066
900	4.918	34.512	6.7	13.350	27.306	0.019
1000	4.487	34.528	10.2	14.181	27.368	-0.017
1100	4.185	34.544	13.8	14.973	27.413	-0.037
1200	3.879	34.558	18.9	15.722	27.456	-0.057
1300	3.645	34.570	23.6	16.435	27.490	-0.071
1400	3.403	34.582	29.5	17.118	27.523	-0.086
1500	3.172	34.592	36.6	17.771	27.554	-0.100
1750	2.743	34.613	51.9	19.293	27.610	-0.122
2000	2.327	34.633	70.5	20.693	27.663	-0.142
2500	1.744	34.667	100.5	23.156	27.738	-0.162
2588	1.732	34.667	101.3	23.557	27.740	-0.163

Station: 17 **Date:** 4/21/2013, 1240 **Lat.:** 23° 30.81 N **Long.:** 109° 08.57 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.762	34.647	214.6	0.039	24.016	3.533
10	21.078	34.486	216.3	0.387	24.082	3.219
20	20.933	34.459	216.3	0.769	24.101	3.158
30	18.518	34.199	206.3	1.141	24.532	2.321
50	18.813	35.214	189.4	1.728	25.234	3.176
75	17.854	35.191	166.0	2.386	25.457	2.917
100	16.593	35.103	129.4	2.993	25.693	2.546
125	13.940	34.788	25.4	3.520	26.040	1.713
150	13.439	34.778	17.5	4.009	26.136	1.601
200	12.175	34.735	4.7	4.910	26.355	1.315
250	11.222	34.684	2.1	5.733	26.495	1.096
300	10.345	34.611	3.2	6.508	26.595	0.882
400	9.039	34.539	4.2	7.938	26.758	0.607
500	7.903	34.501	3.4	9.225	26.904	0.401
600	6.975	34.509	2.1	10.392	27.043	0.275
700	6.119	34.504	2.5	11.444	27.153	0.157
800	5.382	34.491	5.4	12.402	27.235	0.056
900	4.928	34.509	7.0	13.299	27.303	0.017
1000	4.544	34.528	9.6	14.137	27.361	-0.011
1100	4.130	34.546	14.6	14.923	27.421	-0.040
1200	3.816	34.565	19.6	15.661	27.468	-0.058
1300	3.597	34.574	24.3	16.362	27.498	-0.073
1400	3.361	34.584	30.6	17.036	27.529	-0.088
1500	3.180	34.593	36.0	17.687	27.554	-0.098
1750	2.757	34.612	52.1	19.228	27.609	-0.121
2000	2.302	34.635	71.6	20.628	27.666	-0.143
2348	1.917	34.658	88.1	22.345	27.717	-0.156

Station: 18 **Date:** 4/21/2013, 1519 **Lat.:** 23° 29.43 N **Long.:** 109° 13.81 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.008	34.705	216.2	0.039	23.992	3.646
10	21.686	34.663	215.3	0.390	24.049	3.522
20	21.133	34.509	214.8	0.774	24.085	3.251
30	21.069	34.526	215.0	1.155	24.116	3.246
50	18.485	34.943	202.7	1.829	25.110	2.885
75	17.520	35.102	151.8	2.499	25.471	2.768
100	14.695	34.793	71.0	3.081	25.882	1.878
125	13.265	34.754	16.6	3.576	26.152	1.547
150	13.036	34.765	12.9	4.041	26.208	1.509
200	12.315	34.746	7.4	4.936	26.336	1.350
250	11.210	34.692	3.2	5.755	26.503	1.100
300	10.524	34.653	2.9	6.527	26.597	0.946
400	8.935	34.538	4.0	7.950	26.774	0.589
500	8.008	34.516	2.7	9.233	26.900	0.428
600	7.007	34.506	2.2	10.405	27.037	0.277
700	6.167	34.504	2.5	11.467	27.147	0.163
800	5.478	34.507	3.7	12.435	27.236	0.080
900	4.886	34.516	6.7	13.326	27.313	0.018
1000	4.502	34.532	9.3	14.159	27.369	-0.012
1100	4.167	34.552	13.5	14.940	27.421	-0.032
1200	3.847	34.561	19.3	15.676	27.462	-0.058
1300	3.603	34.574	24.4	16.383	27.497	-0.073
1400	3.342	34.584	31.2	17.056	27.531	-0.089
1500	3.172	34.593	36.2	17.705	27.554	-0.099
1750	2.724	34.614	52.9	19.234	27.613	-0.123
1842	2.626	34.619	57.2	19.764	27.626	-0.128

Station: 19 **Date:** 4/21/2013, 1752 **Lat.:** 23° 27.55 N **Long.:** 109° 18.07 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.128	34.679	215.8	0.040	23.938	3.660
10	21.767	34.674	215.7	0.391	24.036	3.554
20	21.093	34.500	214.8	0.776	24.089	3.233
30	21.108	34.538	214.9	1.158	24.114	3.265
50	18.083	34.910	182.0	1.844	25.185	2.759
75	15.932	34.797	103.2	2.490	25.609	2.158
100	12.733	34.485	31.9	3.037	26.050	1.232
125	13.237	34.785	14.7	3.508	26.182	1.566
150	12.862	34.759	10.8	3.969	26.238	1.470
200	12.204	34.746	6.8	4.845	26.358	1.330
250	11.015	34.689	3.5	5.657	26.536	1.062
300	10.552	34.666	3.3	6.419	26.587	0.945
400	9.466	34.595	2.4	7.867	26.733	0.719
500	7.975	34.523	2.5	9.179	26.911	0.429
600	6.973	34.508	2.1	10.350	27.043	0.273
700	6.130	34.501	2.6	11.402	27.150	0.156
800	5.502	34.504	3.9	12.370	27.231	0.080
900	5.086	34.521	5.2	13.275	27.294	0.045
1000	4.634	34.534	8.6	14.126	27.356	0.004
1100	4.052	34.554	15.8	14.899	27.435	-0.042
1200	3.815	34.564	20.1	15.630	27.467	-0.059
1300	3.576	34.575	25.4	16.326	27.500	-0.074
1365	3.413	34.582	29.7	16.763	27.522	-0.085

Station: 20 **Date:** 4/21/2013, 1945 **Lat.:** 23° 26.92 N **Long.:** 109° 22.68 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.483	34.652	214.5	0.041	23.818	3.741
10	21.627	34.613	216.3	0.396	24.028	3.468
20	21.122	34.509	215.6	0.780	24.088	3.248
30	21.035	34.492	216.3	1.162	24.099	3.210
50	15.245	34.536	78.0	1.816	25.562	1.802
75	13.788	34.614	37.9	2.370	25.935	1.548
100	13.131	34.640	21.8	2.870	26.090	1.432
125	13.032	34.746	13.2	3.343	26.193	1.494
150	12.593	34.758	9.3	3.794	26.290	1.415
200	11.883	34.731	5.4	4.652	26.407	1.256
250	11.343	34.706	4.0	5.469	26.490	1.135
300	10.638	34.664	3.0	6.244	26.585	0.974
400	9.660	34.599	2.7	7.719	26.704	0.754
454	8.662	34.554	2.1	8.461	26.830	0.558

Station: 21 **Date:** 4/21/2013, 2325 **Lat.:** 23° 47.91 N **Long.:** 109° 40.46 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.859	34.879	220.2	0.040	23.883	4.022
10	22.068	34.895	220.9	0.388	24.120	3.808
20	21.317	35.103	218.3	0.744	24.487	3.757
30	20.891	35.037	207.2	1.084	24.553	3.588
50	17.401	34.887	129.2	1.697	25.333	2.574
75	14.769	34.862	44.8	2.262	25.918	1.949
100	14.064	34.835	30.7	2.773	26.049	1.776
125	13.149	34.805	17.9	3.249	26.216	1.564
150	12.690	34.797	13.9	3.694	26.302	1.465
200	11.848	34.737	6.0	4.537	26.418	1.254
231	11.543	34.719	4.5	5.045	26.462	1.182

Station: 22 **Date:** 4/22/2013, 0029 **Lat.:** 23° 48.16 N **Long.:** 109° 35.87 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.665	34.807	219.0	0.040	23.883	3.911
10	22.425	34.816	219.8	0.399	23.959	3.849
20	22.116	34.886	219.6	0.786	24.099	3.814
30	21.435	34.921	217.8	1.156	24.317	3.649
50	16.808	34.920	108.4	1.765	25.500	2.458
75	15.166	34.909	63.2	2.339	25.868	2.073
100	13.959	34.823	27.5	2.847	26.062	1.745
125	13.329	34.801	17.5	3.322	26.176	1.597
150	12.916	34.781	12.7	3.779	26.244	1.497
200	11.984	34.747	6.8	4.649	26.401	1.288
250	11.458	34.718	4.7	5.468	26.478	1.165
300	10.713	34.675	3.4	6.251	26.580	0.996
400	9.569	34.626	2.6	7.718	26.740	0.760
500	8.033	34.544	1.9	9.027	26.918	0.454
600	6.902	34.521	1.9	10.179	27.063	0.274
700	6.198	34.517	2.4	11.227	27.153	0.177
800	5.471	34.519	3.5	12.188	27.246	0.088
900	5.016	34.528	5.3	13.079	27.308	0.042
1000	4.633	34.540	8.2	13.919	27.361	0.008
1009	4.615	34.541	8.3	13.992	27.364	0.007

Station: 23 **Date:** 4/22/2013, 0200 **Lat.:** 23° 48.00 N **Long.:** 109° 30.19 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.728	34.867	218.4	0.040	23.911	3.975
10	22.144	34.880	220.8	0.393	24.087	3.818
20	22.043	34.928	220.0	0.771	24.152	3.826
30	21.785	34.930	213.3	1.146	24.226	3.754
50	16.502	34.860	123.0	1.722	25.526	2.340
75	15.105	34.891	58.6	2.290	25.867	2.045
100	13.431	34.766	20.7	2.798	26.127	1.591
125	13.122	34.790	16.7	3.264	26.209	1.547
150	12.736	34.755	9.9	3.717	26.260	1.441
200	11.978	34.755	7.7	4.577	26.408	1.293
250	11.302	34.705	3.8	5.386	26.497	1.127
300	10.639	34.654	2.5	6.161	26.577	0.966
400	9.431	34.588	2.6	7.615	26.733	0.708
500	8.286	34.545	2.0	8.929	26.882	0.493
600	6.904	34.515	2.0	10.088	27.058	0.270
700	6.192	34.514	2.3	11.131	27.152	0.174
800	5.518	34.521	3.2	12.096	27.242	0.095
900	5.040	34.528	5.6	12.991	27.305	0.045
1000	4.683	34.536	8.2	13.836	27.352	0.010
1009	4.664	34.536	8.3	13.910	27.355	0.009

Station: 24 **Date:** 4/22/2013, 0334 **Lat.:** 23° 48.11 N **Long.:** 109° 24.95 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.779	34.562	215.4	0.040	23.947	3.472
10	21.194	34.540	217.2	0.392	24.091	3.292
20	21.122	34.550	216.2	0.772	24.119	3.279
30	20.964	34.563	215.7	1.149	24.173	3.245
50	14.459	34.365	69.1	1.730	25.601	1.497
75	14.207	34.672	38.5	2.278	25.892	1.681
100	13.861	34.855	28.0	2.780	26.107	1.749
125	13.078	34.819	14.9	3.244	26.241	1.560
150	12.676	34.807	12.0	3.685	26.312	1.470
200	11.993	34.753	7.2	4.537	26.404	1.295
250	11.455	34.748	6.7	5.352	26.502	1.188
300	10.495	34.666	3.2	6.117	26.612	0.951
400	9.235	34.594	2.5	7.533	26.769	0.680
500	8.117	34.551	2.0	8.826	26.912	0.472
600	7.052	34.518	2.0	9.986	27.040	0.292
700	6.287	34.514	2.2	11.049	27.140	0.186
800	5.728	34.519	2.9	12.035	27.215	0.119
900	5.098	34.527	5.0	12.947	27.298	0.051
1000	4.499	34.541	9.6	13.778	27.376	-0.006
1009	4.463	34.542	9.9	13.850	27.382	-0.008

Station: 25 **Date:** 4/22/2013, 0456 **Lat.:** 23° 48.18 N **Long.:** 109° 19.82 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.357	34.479	215.1	0.039	24.000	3.291
10	21.075	34.464	216.2	0.392	24.066	3.201
20	20.862	34.440	217.5	0.774	24.106	3.124
30	20.784	34.427	217.1	1.154	24.117	3.092
50	14.175	34.372	63.0	1.750	25.667	1.442
75	14.179	34.656	31.9	2.303	25.885	1.662
100	13.428	34.763	16.5	2.800	26.126	1.588
125	12.836	34.751	9.8	3.265	26.236	1.459
150	12.494	34.760	8.5	3.706	26.311	1.398
200	11.827	34.744	5.6	4.552	26.428	1.256
250	11.233	34.714	4.3	5.353	26.516	1.121
300	10.519	34.665	2.9	6.119	26.607	0.954
400	9.491	34.625	2.5	7.535	26.752	0.747
500	8.114	34.544	2.1	8.830	26.906	0.466
600	6.908	34.477	3.6	10.001	27.028	0.241
700	6.197	34.501	2.7	11.066	27.141	0.164
800	5.569	34.517	3.2	12.037	27.233	0.098
900	5.066	34.527	5.1	12.939	27.301	0.047
1000	4.578	34.533	8.7	13.786	27.362	-0.003
1014	4.502	34.539	9.5	13.900	27.374	-0.007

Station: 26 **Date:** 4/22/2013, 0632 **Lat.:** 23° 47.88 N **Long.:** 109° 14.22 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.915	34.629	215.4	0.039	23.960	3.562
10	21.438	34.596	217.8	0.391	24.067	3.402
20	21.277	34.585	217.6	0.773	24.104	3.349
30	19.498	34.526	192.8	1.144	24.532	2.825
50	15.103	34.396	73.7	1.697	25.485	1.662
75	14.418	34.656	36.3	2.275	25.835	1.714
100	13.577	34.767	17.9	2.790	26.098	1.622
125	12.750	34.775	11.6	3.253	26.272	1.460
150	12.410	34.790	10.3	3.686	26.351	1.405
200	11.857	34.772	9.6	4.516	26.444	1.284
250	11.095	34.722	5.5	5.309	26.548	1.102
300	10.614	34.693	4.1	6.066	26.612	0.992
400	9.485	34.625	2.6	7.491	26.753	0.745
500	8.372	34.561	2.0	8.807	26.881	0.518
600	7.162	34.515	2.1	9.989	27.022	0.305
700	6.277	34.492	2.9	11.069	27.124	0.168
800	5.512	34.504	3.8	12.050	27.229	0.081
900	4.954	34.519	5.7	12.945	27.308	0.028
1000	4.571	34.533	8.7	13.782	27.362	-0.004
1009	4.546	34.533	9.0	13.856	27.365	-0.007

Station: 27 **Date:** 4/22/2013, 0939 **Lat.:** 23° 32.04 N **Long.:** 109° 03.29 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.389	34.425	215.4	0.039	23.950	3.258
10	21.012	34.396	216.3	0.392	24.031	3.132
20	20.844	34.383	216.5	0.778	24.067	3.075
30	20.526	34.415	218.8	1.160	24.178	3.013
50	19.084	35.215	204.7	1.791	25.166	3.246
75	17.795	35.187	163.4	2.462	25.469	2.900
100	16.405	35.061	126.0	3.064	25.705	2.470
125	13.222	34.645	27.3	3.594	26.077	1.454
150	12.727	34.728	9.7	4.065	26.241	1.419
200	11.833	34.678	7.2	4.944	26.376	1.206
250	11.155	34.687	3.6	5.757	26.509	1.085
300	10.459	34.631	3.3	6.529	26.591	0.917
400	9.044	34.550	3.5	7.964	26.765	0.615
500	7.896	34.511	2.9	9.245	26.913	0.408
600	7.003	34.511	2.1	10.409	27.041	0.280
700	6.159	34.505	2.5	11.463	27.149	0.163
800	5.555	34.507	3.5	12.431	27.227	0.089
900	4.981	34.513	6.3	13.332	27.300	0.026
1000	4.567	34.527	9.6	14.173	27.358	-0.009
1008	4.547	34.526	9.9	14.239	27.360	-0.012

Station: 28 **Date:** 4/22/2013, 1256 **Lat.:** 23° 14.01 N **Long.:** 108° 57.78 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.765	34.841	210.2	0.040	23.881	3.966
10	22.748	34.838	208.9	0.401	23.884	3.959
20	22.517	34.805	209.9	0.801	23.925	3.867
30	19.993	34.666	214.5	1.174	24.510	3.063
50	18.050	34.747	96.2	1.796	25.068	2.626
75	16.314	34.856	111.8	2.452	25.568	2.292
100	14.184	34.682	13.2	3.014	25.905	1.683
125	13.164	34.688	8.3	3.517	26.122	1.476
150	12.574	34.746	3.8	3.975	26.285	1.403
200	11.763	34.717	3.5	4.826	26.419	1.223
250	11.391	34.726	6.4	5.632	26.508	1.171
300	10.262	34.615	2.8	6.395	26.612	0.870
400	9.057	34.563	2.7	7.814	26.774	0.628
500	7.891	34.525	2.2	9.089	26.924	0.418
600	6.685	34.476	3.6	10.245	27.057	0.210
700	6.027	34.504	2.7	11.284	27.165	0.145
800	5.481	34.506	3.8	12.245	27.235	0.080
900	4.942	34.517	6.1	13.141	27.307	0.025
1000	4.474	34.532	10.1	13.973	27.372	-0.015
1010	4.440	34.532	10.6	14.053	27.376	-0.018

Station: 29 **Date:** 4/22/2013, 1446 **Lat.:** 23° 13.98 N **Long.:** 109° 03.93 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.469	34.802	211.8	0.040	23.935	3.851
10	22.463	34.800	211.9	0.396	23.936	3.848
20	20.519	34.629	217.8	0.787	24.342	3.176
30	18.650	34.542	183.8	1.125	24.761	2.619
50	17.655	34.735	61.2	1.721	25.155	2.519
75	16.182	34.680	77.8	2.374	25.463	2.126
100	14.600	34.786	33.5	2.955	25.897	1.853
125	13.109	34.729	7.6	3.452	26.165	1.497
150	12.952	34.807	12.1	3.907	26.257	1.525
200	11.992	34.760	7.5	4.768	26.410	1.300
250	11.042	34.675	2.4	5.570	26.521	1.056
300	10.496	34.644	1.9	6.339	26.594	0.934
400	9.036	34.545	3.7	7.766	26.763	0.610
500	7.707	34.494	3.4	9.046	26.927	0.367
600	6.885	34.486	3.2	10.200	27.037	0.244
700	6.033	34.502	2.8	11.249	27.163	0.145
800	5.515	34.508	3.6	12.207	27.232	0.085
900	4.909	34.516	6.5	13.102	27.310	0.021
1000	4.432	34.534	10.5	13.928	27.378	-0.018
1010	4.404	34.536	10.8	14.008	27.383	-0.019

Station: 30 **Date:** 4/22/2013, 1615 **Lat.:** 23° 14.12 N **Long.:** 109° 09.39 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.370	34.828	211.6	0.039	23.983	3.843
10	22.321	34.829	211.5	0.391	23.998	3.829
20	21.975	34.782	212.9	0.780	24.060	3.694
30	19.828	34.540	219.0	1.157	24.457	2.922
50	18.291	34.723	139.2	1.794	24.990	2.667
75	16.394	34.874	88.3	2.462	25.563	2.325
100	15.023	34.881	64.4	3.034	25.878	2.018
125	13.705	34.844	25.0	3.539	26.132	1.707
150	13.194	34.840	16.9	4.003	26.234	1.599
200	11.536	34.667	4.4	4.873	26.422	1.141
250	10.956	34.674	2.0	5.670	26.535	1.039
300	10.370	34.635	1.9	6.429	26.609	0.905
400	8.954	34.534	4.0	7.848	26.767	0.589
500	7.838	34.512	2.7	9.124	26.922	0.400
600	6.811	34.487	2.9	10.276	27.048	0.235
700	6.086	34.501	2.7	11.326	27.155	0.150
800	5.450	34.504	4.1	12.292	27.237	0.075
900	4.982	34.514	6.1	13.190	27.301	0.028
1000	4.495	34.531	9.8	14.027	27.369	-0.014
1010	4.449	34.533	10.4	14.107	27.376	-0.017

Station: 31 **Date:** 4/22/2013, 1748 **Lat.:** 23° 13.99 N **Long.:** 109° 14.97 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.366	34.785	213.0	0.039	23.952	3.809
10	22.250	34.783	212.2	0.393	23.984	3.774
20	21.890	34.721	213.2	0.784	24.038	3.624
30	21.814	34.724	213.4	1.170	24.061	3.604
50	18.272	34.756	108.9	1.834	25.020	2.688
75	14.594	34.472	71.2	2.490	25.655	1.609
100	15.059	34.940	67.4	3.039	25.916	2.072
125	13.703	34.838	22.9	3.540	26.127	1.702
150	12.075	34.626	12.6	4.000	26.288	1.212
200	11.550	34.658	6.0	4.848	26.413	1.137
250	11.160	34.677	2.2	5.659	26.501	1.079
300	10.452	34.633	2.2	6.428	26.593	0.917
400	8.995	34.529	4.9	7.868	26.757	0.592
500	7.935	34.519	2.6	9.151	26.913	0.420
600	6.961	34.503	2.4	10.315	27.040	0.268
700	6.144	34.502	2.6	11.369	27.149	0.159
800	5.400	34.508	3.9	12.329	27.246	0.072
900	4.962	34.515	6.3	13.220	27.304	0.026
1000	4.510	34.532	9.6	14.054	27.368	-0.012
1009	4.483	34.532	9.9	14.127	27.372	-0.014

Station: 32 **Date:** 4/22/2013, 1912 **Lat.:** 23° 14.01 N **Long.:** 109° 19.97 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.921	34.882	212.0	0.040	23.867	4.042
10	22.432	34.870	212.9	0.396	23.998	3.892
20	22.187	34.826	212.6	0.784	24.034	3.788
30	19.431	34.669	199.9	1.139	24.659	2.918
50	17.355	34.797	151.1	1.733	25.276	2.494
75	15.559	34.740	99.1	2.353	25.650	2.030
100	13.709	34.666	43.3	2.894	25.993	1.571
125	12.422	34.536	22.4	3.375	26.151	1.210
150	11.979	34.605	14.5	3.825	26.290	1.178
200	11.553	34.687	3.6	4.670	26.435	1.160
250	11.141	34.681	2.2	5.470	26.507	1.078
300	10.580	34.662	2.8	6.240	26.594	0.963
400	9.203	34.566	2.6	7.673	26.753	0.653
500	7.976	34.529	2.0	8.973	26.915	0.434
600	6.892	34.505	2.2	10.127	27.051	0.260
700	6.030	34.493	3.3	11.173	27.156	0.137
800	5.388	34.506	4.3	12.132	27.246	0.069
900	5.002	34.517	5.6	13.026	27.301	0.032
1000	4.571	34.532	8.6	13.869	27.362	-0.004
1009	4.561	34.533	8.8	13.942	27.363	-0.005

Station: 33 **Date:** 4/22/2013, 2043 **Lat.:** 23° 14.00 N **Long.:** 109° 25.32 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.447	34.707	215.3	0.040	23.869	3.772
10	21.862	34.727	215.9	0.394	24.049	3.621
20	21.100	34.553	212.2	0.777	24.128	3.276
30	19.590	34.448	184.3	1.139	24.449	2.789
50	14.873	34.378	78.4	1.707	25.522	1.597

Station: 34 **Date:** 4/22/2013, 2228 **Lat.:** 23° 02.31 N **Long.:** 109° 29.13 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	23.016	34.926	212.3	0.040	23.873	4.104
10	22.445	34.904	213.8	0.397	24.020	3.922
20	22.333	34.924	213.6	0.782	24.067	3.904
30	21.252	34.736	203.7	1.165	24.226	3.457
50	15.369	34.168	110.8	1.775	25.251	1.544
75	14.210	34.563	38.6	2.388	25.808	1.597
100	13.249	34.615	24.6	2.906	26.047	1.437
125	12.835	34.685	15.2	3.387	26.185	1.407
150	12.329	34.729	8.0	3.836	26.319	1.342
177	11.973	34.726	5.4	4.298	26.386	1.270

Station: 35 **Date:** 4/22/2013, 2341 **Lat.:** 22° 58.57 N **Long.:** 109° 24.94 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	23.066	34.889	212.4	0.041	23.830	4.090
10	22.906	34.881	212.4	0.406	23.871	4.037
20	22.281	34.882	215.1	0.797	24.050	3.858
30	21.717	34.867	213.7	1.179	24.197	3.687
50	16.977	34.711	133.0	1.793	25.300	2.337
75	13.685	34.560	30.4	2.376	25.915	1.484
100	13.257	34.687	18.9	2.880	26.102	1.495
125	12.297	34.571	18.9	3.352	26.202	1.213
150	11.843	34.581	18.8	3.802	26.297	1.133
200	11.519	34.661	6.2	4.649	26.421	1.134
250	10.914	34.619	8.3	5.457	26.500	0.989
300	10.388	34.589	7.6	6.236	26.570	0.872
400	9.418	34.577	2.9	7.699	26.727	0.697
451	8.805	34.553	2.4	8.393	26.807	0.579

Station: 36 **Date:** 4/23/2013, 0051 **Lat.:** 22° 55.36 N **Long.:** 109° 20.30 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.010	34.554	221.5	0.040	23.876	3.531
10	21.172	34.509	224.1	0.396	24.074	3.263
20	18.950	34.346	239.6	0.753	24.535	2.545
30	17.747	34.387	188.6	1.076	24.866	2.274
50	15.873	34.479	87.1	1.632	25.378	1.900
75	14.222	34.598	35.2	2.227	25.832	1.627
100	13.414	34.696	18.0	2.739	26.076	1.533
125	12.716	34.722	12.7	3.207	26.237	1.412
150	12.306	34.703	10.5	3.651	26.303	1.317
200	11.415	34.617	12.8	4.504	26.406	1.080
250	10.922	34.651	4.8	5.308	26.523	1.015
300	10.293	34.634	2.6	6.067	26.622	0.891
400	9.012	34.566	2.5	7.468	26.783	0.623
500	7.831	34.507	2.9	8.743	26.919	0.395
600	6.864	34.504	2.3	9.892	27.054	0.255
700	6.048	34.502	2.6	10.935	27.161	0.147
800	5.566	34.504	3.6	11.900	27.223	0.089
900	5.011	34.516	5.7	12.811	27.299	0.032
1000	4.505	34.536	9.7	13.648	27.372	-0.008
1009	4.441	34.539	10.6	13.720	27.381	-0.013

Station: 37 **Date:** 4/23/2013, 0219 **Lat.:** 22° 52.51 N **Long.:** 109° 16.00 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.367	34.540	241.7	0.036	24.314	3.067
10	18.848	34.473	210.7	0.346	24.657	2.617
20	17.289	34.389	161.5	0.656	24.978	2.165
30	16.294	34.423	115.4	0.937	25.238	1.955
50	14.640	34.423	60.2	1.445	25.607	1.582
75	13.867	34.553	32.7	2.004	25.872	1.517
100	13.512	34.706	18.5	2.516	26.064	1.562
125	12.935	34.715	13.9	2.991	26.188	1.450
150	12.247	34.688	11.3	3.437	26.303	1.294
200	11.760	34.706	6.5	4.287	26.411	1.214
250	11.084	34.677	3.4	5.096	26.514	1.065
300	10.319	34.631	2.6	5.857	26.615	0.893
400	8.798	34.554	2.6	7.247	26.808	0.580
500	7.723	34.521	2.2	8.494	26.946	0.390
600	6.887	34.502	2.4	9.637	27.050	0.257
700	6.084	34.501	2.8	10.686	27.155	0.150
800	5.399	34.503	4.3	11.641	27.243	0.068
900	4.897	34.515	6.8	12.533	27.311	0.019
1000	4.464	34.534	10.2	13.361	27.375	-0.014
1010	4.401	34.536	11.2	13.440	27.383	-0.020

Station: 38 **Date:** 4/23/2013, 0347 **Lat.:** 22° 49.24 N **Long.:** 109° 12.01 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.971	34.587	234.9	0.037	24.187	3.267
10	20.838	34.582	237.2	0.372	24.220	3.227
20	17.319	34.428	171.1	0.689	25.000	2.202
30	15.974	34.370	111.0	0.969	25.270	1.839
50	14.845	34.440	62.0	1.478	25.575	1.639
75	13.205	34.332	52.1	2.050	25.836	1.208
100	13.346	34.618	21.0	2.565	26.030	1.459
125	13.010	34.713	13.9	3.049	26.172	1.464
150	12.192	34.671	10.5	3.499	26.301	1.270
200	11.613	34.699	5.5	4.342	26.433	1.181
250	10.883	34.654	4.3	5.139	26.532	1.011
300	10.295	34.633	2.4	5.895	26.620	0.890
400	8.918	34.532	4.4	7.306	26.772	0.582
500	7.894	34.520	2.4	8.586	26.920	0.414
600	6.889	34.502	2.4	9.741	27.050	0.258
700	6.050	34.497	3.1	10.785	27.157	0.143
800	5.412	34.505	4.2	11.746	27.243	0.071
900	4.912	34.513	7.0	12.636	27.307	0.018
1000	4.506	34.530	9.9	13.470	27.367	-0.013
1010	4.452	34.532	10.6	13.550	27.374	-0.018

Station: 39 **Date:** 4/23/2013, 0510 **Lat.:** 22° 46.08 N **Long.:** 109° 07.46 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.325	34.553	219.7	0.038	24.065	3.339
10	20.666	34.498	224.0	0.381	24.202	3.115
20	19.968	34.480	232.4	0.747	24.374	2.913
30	19.242	34.452	210.3	1.092	24.542	2.702
50	15.898	34.496	94.0	1.671	25.385	1.919
75	14.075	34.404	58.8	2.276	25.713	1.445
100	13.239	34.554	21.4	2.815	26.002	1.387
125	12.718	34.660	13.5	3.300	26.189	1.365
150	12.506	34.709	11.2	3.756	26.269	1.360
200	11.623	34.706	5.4	4.608	26.437	1.188
250	11.049	34.670	4.0	5.405	26.516	1.054
300	10.153	34.594	5.4	6.164	26.615	0.835
400	8.805	34.529	4.3	7.570	26.787	0.561
500	7.734	34.513	2.5	8.836	26.938	0.386
600	6.652	34.484	3.1	9.975	27.067	0.212
700	6.123	34.506	2.5	11.020	27.154	0.159
800	5.422	34.510	3.9	11.981	27.245	0.076
900	4.854	34.515	7.3	12.864	27.316	0.014
1000	4.427	34.535	10.5	13.686	27.379	-0.018
1011	4.389	34.536	11.1	13.774	27.385	-0.021

Station: 40 **Date:** 4/23/2013, 0855 **Lat.:** 22° 32.90 N **Long.:** 109° 24.77 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.533	34.335	219.7	0.038	24.114	2.955
10	20.514	34.332	220.3	0.379	24.117	2.947
20	20.405	34.321	220.7	0.758	24.138	2.908
30	20.068	34.294	221.3	1.132	24.207	2.797
50	17.267	34.320	159.9	1.822	24.931	2.104
75	14.263	34.354	51.1	2.487	25.635	1.446
100	13.999	34.714	22.2	3.031	25.969	1.669
125	13.156	34.725	12.0	3.523	26.152	1.503
150	12.816	34.761	10.9	3.985	26.248	1.462
200	11.948	34.725	3.3	4.853	26.391	1.264
250	11.204	34.683	2.9	5.668	26.497	1.091
300	10.604	34.655	2.2	6.442	26.584	0.961
400	9.311	34.577	2.4	7.886	26.743	0.679
500	7.991	34.517	2.6	9.187	26.904	0.427
600	6.865	34.490	2.9	10.350	27.044	0.245
700	6.123	34.502	2.8	11.397	27.151	0.156
800	5.463	34.511	3.8	12.354	27.241	0.081
900	5.111	34.517	5.2	13.261	27.288	0.044
1000	4.548	34.529	9.3	14.111	27.362	-0.009
1013	4.477	34.531	10.4	14.216	27.371	-0.016

Station: 41 **Date:** 4/23/2013, 1049 **Lat.:** 22° 36.83 N **Long.:** 109° 28.81 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.056	34.357	224.8	0.037	24.257	2.843
10	20.062	34.356	224.0	0.366	24.255	2.844
20	20.005	34.352	224.1	0.731	24.267	2.825
30	19.063	34.246	227.0	1.090	24.430	2.496
50	18.169	34.233	184.1	1.775	24.645	2.259
75	14.646	34.386	67.8	2.473	25.578	1.553
100	13.649	34.537	34.5	3.036	25.905	1.458
125	12.847	34.613	15.1	3.536	26.127	1.354
150	12.392	34.669	9.5	3.997	26.260	1.307
200	11.564	34.666	7.3	4.857	26.416	1.146
250	10.940	34.635	6.1	5.662	26.508	1.007
300	10.347	34.603	5.2	6.432	26.588	0.876
400	8.916	34.526	5.1	7.861	26.767	0.576
500	7.677	34.505	2.9	9.135	26.940	0.371
600	6.704	34.490	2.9	10.270	27.065	0.223
700	5.955	34.491	3.6	11.302	27.164	0.126
800	5.429	34.510	3.9	12.261	27.244	0.076
900	4.960	34.520	6.2	13.149	27.308	0.030
1000	4.607	34.530	8.9	13.989	27.356	-0.002
1009	4.553	34.532	9.6	14.062	27.364	-0.007

Station: 42 **Date:** 4/23/2013, 1227 **Lat.:** 22° 40.91 N **Long.:** 109° 31.96 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.504	34.676	215.1	0.038	24.109	3.482
10	21.511	34.673	215.4	0.380	24.106	3.482
20	19.639	34.299	228.7	0.749	24.322	2.688
30	19.195	34.296	233.3	1.104	24.435	2.569
50	18.340	34.377	190.1	1.784	24.713	2.413
75	14.558	34.355	61.4	2.492	25.573	1.510
100	13.720	34.681	23.3	3.032	26.002	1.585
125	13.022	34.712	14.4	3.515	26.169	1.466
150	12.258	34.642	13.5	3.974	26.265	1.260
200	11.482	34.664	7.3	4.823	26.430	1.129
250	10.781	34.623	6.3	5.620	26.527	0.969
300	10.354	34.613	4.3	6.382	26.595	0.885
400	8.910	34.537	4.0	7.803	26.777	0.584
500	7.790	34.518	2.4	9.067	26.933	0.398
600	6.669	34.489	2.9	10.193	27.069	0.218
700	6.073	34.503	2.7	11.232	27.158	0.150
800	5.413	34.509	3.9	12.186	27.246	0.074
900	4.909	34.519	6.2	13.073	27.313	0.023
1000	4.616	34.530	8.3	13.914	27.355	-0.001
1010	4.579	34.530	9.0	13.996	27.359	-0.005

Station: 43 **Date:** 4/23/2013, 1357 **Lat.:** 22° 44.68 N **Long.:** 109° 34.82 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.779	34.748	213.2	0.038	24.088	3.615
10	21.211	34.615	216.5	0.381	24.144	3.354
20	19.071	34.281	233.3	0.741	24.455	2.526
30	18.918	34.346	225.3	1.084	24.543	2.536
50	16.965	34.314	153.3	1.725	24.998	2.028
75	14.157	34.471	44.9	2.375	25.748	1.515
100	13.833	34.677	24.3	2.911	25.976	1.606
125	12.867	34.658	17.4	3.400	26.158	1.392
150	11.889	34.621	14.5	3.852	26.320	1.173
200	11.515	34.673	4.2	4.689	26.431	1.143
250	11.081	34.685	2.9	5.490	26.521	1.071
300	10.358	34.622	2.7	6.253	26.602	0.893
400	8.913	34.532	4.5	7.673	26.773	0.581
500	7.926	34.518	2.5	8.962	26.914	0.418
600	6.839	34.501	2.5	10.116	27.055	0.250
700	6.002	34.508	2.8	11.150	27.171	0.145
800	5.601	34.507	3.6	12.116	27.222	0.095
900	4.972	34.519	6.4	13.026	27.306	0.030
1000	4.555	34.532	9.0	13.864	27.364	-0.006
1008	4.516	34.533	9.5	13.929	27.368	-0.010

Station: 44 **Date:** 4/23/2013, 1534 **Lat.:** 22° 48.15 N **Long.:** 109° 37.97 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.706	34.727	214.5	0.038	24.092	3.578
10	20.134	34.356	223.8	0.379	24.236	2.863
20	19.420	34.321	231.0	0.740	24.396	2.648
30	18.481	34.318	215.4	1.082	24.632	2.403
50	16.456	34.360	125.1	1.689	25.152	1.942
75	14.025	34.465	45.1	2.310	25.771	1.482
100	13.739	34.641	25.6	2.848	25.967	1.558
125	12.581	34.631	17.5	3.333	26.193	1.315
150	11.935	34.615	14.4	3.781	26.306	1.177
200	11.752	34.710	4.0	4.628	26.416	1.215
250	11.331	34.698	3.8	5.440	26.486	1.126
300	10.554	34.650	2.8	6.216	26.589	0.949
400	9.033	34.532	4.8	7.655	26.754	0.600
500	7.897	34.518	2.7	8.954	26.918	0.413
600	7.024	34.510	2.3	10.128	27.037	0.282
700	6.104	34.504	2.7	11.183	27.156	0.156
800	5.503	34.509	4.0	12.153	27.235	0.085
900	4.884	34.524	7.2	13.037	27.319	0.024
909	4.876	34.524	7.3	13.114	27.321	0.023

Station: 45 **Date:** 4/23/2013, 1707 **Lat.:** 22° 52.36 N **Long.:** 109° 41.01 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.152	34.814	212.5	0.039	24.034	3.770
10	21.725	34.741	213.6	0.385	24.098	3.593
20	18.813	34.281	231.3	0.744	24.520	2.459
30	17.554	34.326	178.3	1.068	24.866	2.180
50	15.422	34.316	96.5	1.654	25.354	1.671
75	13.926	34.449	46.1	2.253	25.779	1.448
100	13.168	34.599	23.2	2.773	26.051	1.408
125	12.766	34.632	17.4	3.255	26.158	1.353
150	11.976	34.618	12.8	3.703	26.300	1.187
200	11.695	34.719	4.2	4.547	26.433	1.211
250	11.031	34.685	3.0	5.348	26.530	1.062
300	10.522	34.651	2.9	6.112	26.595	0.943
400	9.144	34.557	3.4	7.540	26.755	0.637
500	7.893	34.529	2.3	8.815	26.927	0.422
580	6.758	34.511	2.7	9.719	27.074	0.247

Station: 46 **Date:** 4/23/2013, 1828 **Lat.:** 22° 56.86 N **Long.:** 109° 44.31 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.961	34.685	213.9	0.039	23.989	3.617
10	21.780	34.687	213.8	0.389	24.042	3.568
20	20.519	34.496	222.3	0.765	24.241	3.074
30	20.005	34.466	220.5	1.130	24.355	2.913
50	17.143	34.350	146.0	1.781	24.984	2.098
75	14.208	34.565	42.0	2.418	25.809	1.598
100	13.062	34.643	21.7	2.931	26.107	1.421
125	12.485	34.672	9.8	3.394	26.244	1.328
150	12.256	34.720	7.2	3.836	26.326	1.320
200	11.421	34.703	3.9	4.663	26.472	1.148
250	10.801	34.667	3.0	5.447	26.557	1.006
300	10.273	34.632	2.6	6.195	26.623	0.885
301	10.270	34.631	2.4	6.210	26.623	0.884

Station: 47 **Date:** 4/23/2013, 2043 **Lat.:** 22° 46.94 N **Long.:** 109° 55.96 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.229	34.440	224.8	0.036	24.274	2.954
10	20.203	34.437	225.7	0.364	24.280	2.944
20	19.844	34.400	228.3	0.726	24.346	2.820
30	18.417	34.365	223.7	1.062	24.684	2.424
50	15.885	34.248	105.3	1.669	25.197	1.723
75	13.814	34.262	84.8	2.303	25.657	1.279
100	12.695	34.387	39.6	2.848	25.981	1.148
125	12.334	34.611	16.0	3.321	26.226	1.251
150	12.208	34.697	4.6	3.763	26.317	1.293
200	11.702	34.704	5.4	4.604	26.420	1.201
250	10.903	34.661	3.9	5.402	26.534	1.020
300	10.418	34.635	3.3	6.162	26.601	0.913
400	9.009	34.565	2.8	7.588	26.783	0.622
500	7.667	34.515	2.5	8.844	26.949	0.377
600	6.748	34.504	2.5	9.970	27.070	0.240
700	6.169	34.504	2.6	11.010	27.147	0.163
800	5.685	34.506	3.3	11.993	27.211	0.104
900	4.911	34.519	6.5	12.894	27.312	0.023
1000	4.533	34.532	10.0	13.732	27.366	-0.009
1011	4.511	34.534	10.6	13.821	27.369	-0.010

Station: 48 **Date:** 4/23/2013, 2214 **Lat.:** 22° 41.83 N **Long.:** 109° 56.03 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.407	34.438	223.8	0.037	24.226	3.000
10	20.362	34.435	224.1	0.369	24.236	2.985
20	19.903	34.388	228.0	0.733	24.321	2.825
30	19.440	34.318	227.0	1.090	24.389	2.650
50	17.123	34.229	198.9	1.745	24.895	1.999
75	14.145	34.020	110.2	2.462	25.401	1.160
100	13.943	34.535	38.7	3.034	25.842	1.518
125	12.273	34.394	41.5	3.550	26.069	1.070
150	12.426	34.668	13.2	4.018	26.253	1.313
200	11.721	34.680	7.7	4.876	26.398	1.186
250	11.202	34.677	4.3	5.688	26.493	1.086
300	10.368	34.626	3.6	6.461	26.600	0.895
400	9.190	34.557	3.3	7.897	26.748	0.645
500	7.712	34.489	3.9	9.184	26.923	0.364
600	6.873	34.493	2.8	10.335	27.045	0.248
700	5.954	34.497	3.3	11.377	27.169	0.131
800	5.387	34.506	4.3	12.323	27.246	0.069
900	4.875	34.521	6.6	13.209	27.318	0.020
1000	4.500	34.535	9.9	14.028	27.372	-0.010
1010	4.483	34.536	10.0	14.109	27.375	-0.011

Station: 49 **Date:** 4/23/2013, 2348 **Lat.:** 22° 36.95 N **Long.:** 109° 55.89 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.219	34.349	222.9	0.037	24.208	2.881
10	20.211	34.348	223.1	0.371	24.209	2.877
20	20.164	34.356	222.9	0.740	24.228	2.871
30	19.918	34.361	226.0	1.106	24.298	2.809
50	17.950	34.120	224.4	1.806	24.612	2.116
75	15.528	34.442	56.7	2.530	25.428	1.792
100	13.511	34.553	34.7	3.104	25.946	1.442
125	13.451	34.716	18.1	3.610	26.085	1.556
150	12.451	34.618	15.0	4.084	26.209	1.279
200	11.616	34.641	10.9	4.954	26.387	1.136
250	11.099	34.675	3.1	5.767	26.510	1.066
300	10.725	34.667	2.0	6.544	26.572	0.992
400	9.145	34.547	4.2	7.985	26.747	0.630
500	7.838	34.504	3.2	9.278	26.916	0.393
600	6.700	34.485	3.3	10.424	27.062	0.219
700	5.984	34.483	4.1	11.463	27.154	0.124
800	5.400	34.495	5.3	12.425	27.236	0.061
900	4.945	34.514	6.7	13.318	27.305	0.023
1000	4.577	34.526	9.6	14.160	27.356	-0.009
1009	4.556	34.528	9.5	14.234	27.360	-0.009

Station: 50 **Date:** 4/24/2013, 0113 **Lat.:** 22° 31.91 N **Long.:** 109° 55.95 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.526	34.316	219.5	0.038	24.101	2.938
10	20.522	34.316	219.5	0.381	24.102	2.937
20	20.530	34.321	219.5	0.761	24.104	2.942
30	20.257	34.316	221.0	1.141	24.174	2.864
50	18.058	34.262	197.2	1.840	24.694	2.253
75	16.273	34.553	112.9	2.576	25.344	2.048
100	14.819	34.594	60.6	3.191	25.702	1.751
125	13.112	34.530	22.8	3.731	26.010	1.343
150	12.777	34.719	11.3	4.207	26.224	1.422
200	11.985	34.721	4.6	5.080	26.380	1.267
250	11.337	34.699	2.4	5.901	26.486	1.129
300	10.798	34.671	1.9	6.685	26.562	1.008
400	9.336	34.589	2.1	8.133	26.749	0.693
500	8.066	34.529	2.2	9.427	26.902	0.447
600	6.765	34.465	4.2	10.591	27.037	0.212
700	6.102	34.487	3.6	11.649	27.142	0.142
800	5.500	34.489	5.1	12.623	27.219	0.068
900	4.950	34.503	7.6	13.526	27.295	0.015
1000	4.565	34.522	10.0	14.376	27.355	-0.013
1009	4.561	34.526	9.7	14.450	27.358	-0.011

Station: 51 **Date:** 4/24/2013, 0251 **Lat.:** 22° 27.00 N **Long.:** 109° 56.02 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.191	34.640	211.9	0.040	23.891	3.648
10	22.187	34.636	211.9	0.401	23.889	3.643
20	22.205	34.639	211.4	0.802	23.888	3.651
30	22.146	34.629	211.9	1.204	23.897	3.626
50	19.483	34.816	183.5	1.937	24.759	3.044
75	17.328	34.799	134.1	2.648	25.285	2.488
100	14.505	34.515	62.0	3.267	25.709	1.622
125	13.289	34.621	17.4	3.803	26.044	1.449
150	12.837	34.725	7.3	4.277	26.217	1.438
200	12.006	34.723	4.8	5.159	26.378	1.274
250	11.249	34.683	3.8	5.978	26.489	1.100
300	10.405	34.621	4.0	6.753	26.593	0.900
400	9.085	34.568	2.4	8.169	26.773	0.636
500	7.991	34.547	1.9	9.441	26.927	0.450
600	6.885	34.520	2.0	10.584	27.064	0.271
700	6.034	34.499	3.0	11.623	27.161	0.143
800	5.416	34.496	5.0	12.584	27.235	0.064
900	4.942	34.515	6.3	13.479	27.306	0.023
1000	4.519	34.521	11.0	14.319	27.358	-0.019
1009	4.492	34.521	11.4	14.392	27.362	-0.022

Station: 52 **Date:** 4/24/2013, 0418 **Lat.:** 22° 22.04 N **Long.:** 109° 56.03 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	22.044	34.630	212.2	0.040	23.925	3.599
10	22.035	34.632	211.9	0.397	23.929	3.598
20	21.978	34.625	211.6	0.795	23.940	3.575
30	21.703	34.587	213.2	1.190	23.989	3.469
50	18.708	34.268	215.9	1.918	24.538	2.422
75	17.309	34.780	122.0	2.681	25.274	2.468
100	13.838	34.456	42.2	3.292	25.804	1.435
125	12.932	34.532	26.2	3.814	26.047	1.308
150	12.708	34.697	10.2	4.287	26.220	1.391
200	11.907	34.721	4.5	5.164	26.395	1.253
250	11.093	34.673	3.2	5.980	26.510	1.064
300	10.416	34.645	2.4	6.747	26.609	0.921
400	9.028	34.570	2.0	8.166	26.784	0.629
500	7.851	34.528	2.0	9.430	26.933	0.415
600	6.991	34.521	2.0	10.581	27.051	0.286
700	6.192	34.519	2.0	11.630	27.156	0.178
800	5.607	34.520	2.4	12.598	27.231	0.106
900	5.042	34.525	4.4	13.500	27.302	0.042
1000	4.534	34.522	10.4	14.343	27.358	-0.016
1009	4.504	34.523	10.8	14.416	27.362	-0.019

Station: 53 **Date:** 4/24/2013, 0541 **Lat.:** 22° 17.12 N **Long.:** 109° 56.04 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	21.483	34.536	215.2	0.039	24.009	3.370
10	21.485	34.536	215.4	0.390	24.008	3.369
20	21.492	34.536	215.0	0.779	24.008	3.371
30	21.381	34.515	216.2	1.170	24.023	3.324
50	18.821	34.372	202.2	1.881	24.589	2.531
75	17.490	34.840	107.2	2.633	25.277	2.559
100	13.881	34.420	48.2	3.250	25.767	1.415
125	13.361	34.627	20.8	3.776	26.034	1.468
150	12.977	34.703	10.8	4.258	26.171	1.449
200	12.022	34.723	3.8	5.141	26.375	1.277
250	11.212	34.691	3.1	5.956	26.502	1.100
300	10.514	34.647	2.3	6.729	26.594	0.939
400	8.972	34.569	2.1	8.144	26.792	0.619
500	7.843	34.524	2.1	9.408	26.930	0.410
600	6.815	34.524	1.9	10.537	27.077	0.264
700	6.062	34.520	1.9	11.563	27.174	0.163
800	5.638	34.522	2.3	12.525	27.228	0.111
900	5.116	34.526	4.0	13.439	27.295	0.052
1000	4.589	34.537	8.1	14.284	27.364	0.001
1010	4.553	34.537	8.8	14.365	27.368	-0.002

Station: 54 **Date:** 4/24/2013, 0909 **Lat.:** 22° 21.90 N **Long.:** 110° 20.00 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.865	34.404	217.6	0.038	24.076	3.098
10	20.878	34.403	217.3	0.383	24.073	3.100
20	20.873	34.403	216.2	0.767	24.074	3.098
30	20.877	34.403	216.7	1.151	24.074	3.099
50	19.669	34.368	217.2	1.902	24.368	2.747
75	17.872	34.799	108.4	2.688	25.153	2.621
100	15.670	34.678	81.0	3.338	25.578	2.006
125	13.173	34.543	25.1	3.894	26.007	1.365
150	12.928	34.755	9.8	4.373	26.221	1.479
200	11.580	34.611	13.5	5.245	26.371	1.106
250	10.937	34.621	8.4	6.062	26.497	0.995
300	9.985	34.552	9.0	6.827	26.611	0.774
400	8.723	34.531	4.0	8.229	26.801	0.550
500	7.421	34.467	4.8	9.479	26.947	0.305
600	6.497	34.461	4.5	10.604	27.069	0.173
700	5.886	34.473	4.8	11.640	27.159	0.104
800	5.356	34.489	6.2	12.598	27.236	0.051
900	4.911	34.511	7.3	13.490	27.306	0.017
1000	4.496	34.531	10.1	14.324	27.369	-0.013
1012	4.449	34.533	10.6	14.420	27.376	-0.017

Station: 55 **Date:** 4/24/2013, 1057 **Lat.:** 22° 27.82 N **Long.:** 110° 20.05 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.599	34.365	218.9	0.038	24.118	2.995
10	20.601	34.364	218.5	0.379	24.118	2.995
20	20.592	34.365	218.4	0.758	24.121	2.993
30	20.042	34.289	221.8	1.135	24.210	2.786
50	18.519	34.203	209.0	1.846	24.536	2.324
75	15.404	34.101	146.4	2.602	25.193	1.499
100	14.537	34.617	41.0	3.220	25.780	1.708
125	13.087	34.580	21.0	3.738	26.054	1.376
150	12.924	34.762	5.9	4.212	26.228	1.484
200	11.850	34.717	4.0	5.081	26.403	1.239
250	10.771	34.619	7.8	5.888	26.525	0.964
300	9.782	34.513	12.4	6.647	26.615	0.709
400	8.539	34.494	6.3	8.033	26.801	0.493
500	7.365	34.464	4.6	9.275	26.952	0.295
600	6.619	34.465	4.3	10.411	27.057	0.192
700	5.956	34.487	4.3	11.454	27.160	0.123
800	5.425	34.502	4.6	12.414	27.239	0.070
900	4.915	34.519	6.3	13.304	27.312	0.023
1000	4.564	34.532	8.9	14.139	27.362	-0.005
1009	4.533	34.534	9.1	14.212	27.367	-0.007

Station: 56 **Date:** 4/24/2013, 1224 **Lat.:** 22° 32.00 N **Long.:** 110° 19.99 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.651	34.401	218.2	0.038	24.132	3.038
10	20.645	34.400	218.4	0.378	24.133	3.034
20	20.332	34.350	222.2	0.755	24.179	2.911
30	19.711	34.264	223.4	1.123	24.277	2.679
50	17.233	34.078	204.3	1.800	24.753	1.908
75	15.854	34.556	95.1	2.506	25.442	1.954
100	13.327	34.473	31.8	3.093	25.921	1.342
125	13.337	34.729	10.8	3.597	26.119	1.543
150	12.901	34.756	8.3	4.065	26.228	1.475
200	12.147	34.747	5.0	4.943	26.370	1.319
250	11.416	34.712	2.9	5.765	26.481	1.153
300	10.373	34.641	2.2	6.539	26.613	0.910
400	8.547	34.493	6.4	7.936	26.799	0.493
500	7.364	34.455	5.2	9.179	26.945	0.287
600	6.607	34.471	3.8	10.313	27.063	0.195
700	5.886	34.474	5.2	11.349	27.159	0.104
800	5.437	34.509	4.1	12.303	27.243	0.077
900	4.866	34.517	7.0	13.187	27.316	0.017
1000	4.437	34.536	10.6	14.010	27.379	-0.016
1009	4.401	34.537	10.9	14.081	27.384	-0.019

Station: 57 **Date:** 4/24/2013, 1353 **Lat.:** 22° 37.05 N **Long.:** 110° 19.78 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.179	34.348	221.7	0.037	24.218	2.870
10	20.183	34.349	221.9	0.370	24.218	2.871
20	20.189	34.352	221.9	0.739	24.219	2.875
30	19.822	34.360	223.0	1.107	24.322	2.783
50	17.495	34.140	170.7	1.792	24.739	2.021
75	14.943	34.385	74.7	2.480	25.512	1.617
100	14.257	34.567	46.9	3.060	25.801	1.609
125	13.518	34.699	20.3	3.584	26.058	1.556
150	12.661	34.653	13.4	4.062	26.195	1.347
200	11.919	34.673	8.5	4.954	26.356	1.218
250	11.168	34.634	7.8	5.782	26.466	1.047
300	10.483	34.618	5.2	6.567	26.576	0.911
400	8.911	34.531	4.9	7.996	26.772	0.580
500	7.591	34.456	5.8	9.280	26.914	0.320
600	6.760	34.484	3.4	10.430	27.053	0.226
700	6.031	34.497	3.3	11.475	27.159	0.141
800	5.284	34.497	5.6	12.426	27.251	0.049
900	4.767	34.508	9.1	13.305	27.320	-0.002
1000	4.403	34.531	11.7	14.127	27.378	-0.024
1012	4.377	34.532	12.1	14.223	27.383	-0.025

Station: 58 **Date:** 4/24/2013, 1524 **Lat.:** 22° 42.00 N **Long.:** 110° 19.86 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.888	34.260	222.8	0.037	24.227	2.724
10	19.881	34.260	222.4	0.369	24.229	2.722
20	19.878	34.261	222.3	0.737	24.231	2.721
30	19.877	34.261	222.4	1.106	24.232	2.720
50	16.497	34.201	156.4	1.788	25.021	1.829
75	14.233	34.389	65.7	2.429	25.668	1.466
100	13.704	34.519	41.9	2.989	25.880	1.455
125	12.994	34.609	25.3	3.491	26.094	1.380
150	12.764	34.631	20.6	3.967	26.158	1.351
200	12.203	34.670	12.5	4.881	26.299	1.270
250	11.617	34.707	4.1	5.729	26.440	1.186
300	10.789	34.626	6.2	6.532	26.529	0.971
400	9.148	34.551	4.0	7.989	26.750	0.633
500	7.837	34.513	2.8	9.287	26.923	0.400
600	6.760	34.495	2.8	10.434	27.062	0.235
700	5.985	34.487	4.0	11.472	27.157	0.127
800	5.342	34.500	5.1	12.428	27.247	0.059
900	4.834	34.517	7.3	13.310	27.320	0.014
1000	4.536	34.532	9.5	14.140	27.366	-0.008
1009	4.527	34.533	9.5	14.213	27.368	-0.008

Station: 59 **Date:** 4/24/2013, 1657 **Lat.:** 22° 47.08 N **Long.:** 110° 19.86 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.676	34.187	224.0	0.037	24.226	2.612
10	19.632	34.188	224.8	0.368	24.239	2.601
20	19.491	34.202	224.8	0.735	24.287	2.574
30	18.934	34.164	232.8	1.090	24.401	2.400
50	16.600	34.343	135.9	1.743	25.106	1.963
75	14.151	34.360	65.5	2.387	25.663	1.427
100	13.463	34.556	35.8	2.932	25.958	1.435
125	12.903	34.622	23.1	3.426	26.123	1.372
150	12.625	34.668	16.5	3.894	26.214	1.351
200	12.089	34.697	9.1	4.780	26.342	1.269
250	11.476	34.690	4.6	5.617	26.453	1.147
300	10.961	34.697	2.0	6.411	26.553	1.057
400	9.276	34.577	2.9	7.885	26.749	0.674
500	7.942	34.533	2.2	9.181	26.923	0.431
600	6.880	34.504	2.6	10.333	27.052	0.258
700	6.056	34.507	2.6	11.364	27.164	0.151
800	5.472	34.510	3.7	12.323	27.239	0.082
900	4.930	34.520	7.0	13.213	27.311	0.026
1000	4.435	34.535	11.0	14.033	27.379	-0.017
1010	4.417	34.536	11.4	14.112	27.382	-0.018

Station: 60 **Date:** 4/24/2013, 1832 **Lat.:** 22° 51.88 N **Long.:** 110° 20.02 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.599	34.148	226.6	0.037	24.216	2.562
10	19.365	34.128	228.3	0.367	24.262	2.485
20	19.334	34.139	225.4	0.732	24.279	2.484
30	17.750	34.074	230.5	1.074	24.625	2.033
50	16.286	34.070	167.1	1.711	24.968	1.677
75	14.438	34.138	88.0	2.405	25.431	1.315
100	12.778	34.348	46.3	2.978	25.934	1.134
125	13.067	34.730	4.0	3.467	26.173	1.488
150	12.768	34.747	2.7	3.924	26.247	1.441
200	11.784	34.693	4.4	4.788	26.396	1.208
250	11.300	34.718	2.0	5.599	26.507	1.136
300	10.803	34.684	1.9	6.374	26.572	1.019
400	9.011	34.563	2.8	7.803	26.781	0.620
500	7.639	34.511	2.8	9.067	26.950	0.371
600	6.688	34.498	2.9	10.184	27.074	0.227
646	6.281	34.501	3.1	10.667	27.130	0.176

Station: 61 **Date:** 4/24/2013, 1956 **Lat.:** 22° 56.84 N **Long.:** 110° 19.99 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.452	34.094	229.8	0.037	24.213	2.481
10	19.057	34.085	230.9	0.367	24.308	2.372
20	17.852	34.086	226.8	0.711	24.609	2.067
30	17.385	34.065	221.6	1.038	24.706	1.936
50	16.231	34.033	171.2	1.663	24.953	1.636
75	14.371	34.123	90.3	2.345	25.434	1.289
100	12.738	34.310	51.1	2.920	25.913	1.097
125	11.973	34.418	39.9	3.413	26.145	1.031
150	11.954	34.627	14.5	3.865	26.312	1.190
200	11.572	34.719	2.4	4.701	26.456	1.189
250	10.994	34.692	2.3	5.494	26.542	1.060
300	10.545	34.670	2.3	6.253	26.606	0.963
400	9.088	34.541	4.6	7.689	26.752	0.616
500	7.824	34.518	2.8	8.960	26.929	0.403
600	6.745	34.498	3.0	10.094	27.065	0.235
630	6.630	34.498	3.0	10.417	27.082	0.220

Station: 62 **Date:** 4/24/2013, 2112 **Lat.:** 22° 57.96 N **Long.:** 110° 14.84 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.710	34.188	227.9	0.037	24.218	2.622
10	18.985	34.177	231.4	0.366	24.396	2.424
20	18.055	34.133	236.8	0.711	24.596	2.155
30	17.437	34.161	230.3	1.039	24.768	2.023
50	14.660	33.968	129.2	1.638	25.251	1.231
75	12.603	34.096	81.5	2.240	25.773	0.903
100	12.450	34.363	45.7	2.763	26.011	1.081
125	12.049	34.471	32.1	3.241	26.172	1.087
150	11.994	34.587	18.5	3.697	26.273	1.167
200	11.719	34.710	2.8	4.547	26.422	1.209
250	11.116	34.699	2.1	5.352	26.526	1.088
300	10.637	34.665	2.5	6.121	26.586	0.975
400	9.214	34.573	2.9	7.549	26.756	0.661
414	9.145	34.570	2.7	7.739	26.765	0.647

Station: 63 **Date:** 4/24/2013, 2226 **Lat.:** 22° 59.99 N **Long.:** 110° 09.04 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.556	34.410	224.9	0.037	24.164	3.018
10	18.998	34.188	231.3	0.366	24.401	2.435
20	17.985	34.267	235.3	0.698	24.715	2.241
30	16.443	34.072	179.4	1.009	24.934	1.717
50	13.502	34.018	99.7	1.551	25.532	1.024
75	12.916	34.301	55.7	2.117	25.870	1.125
100	12.643	34.425	38.3	2.629	26.021	1.167
125	12.007	34.575	20.5	3.098	26.261	1.160
150	11.826	34.663	10.1	3.528	26.364	1.194
200	11.556	34.674	7.1	4.364	26.424	1.150
250	10.970	34.666	3.8	5.160	26.527	1.036
300	10.611	34.649	3.1	5.932	26.578	0.958
400	9.355	34.576	3.2	7.382	26.736	0.686
500	8.159	34.536	2.6	8.688	26.893	0.466
600	6.843	34.507	2.9	9.857	27.060	0.255
700	6.113	34.507	3.9	10.898	27.156	0.158
800	5.531	34.512	5.7	11.866	27.234	0.090
819	5.468	34.512	6.0	12.042	27.241	0.082

Station: 64 **Date:** 4/25/2013, 0112 **Lat.:** 22° 56.17 N **Long.:** 110° 26.42 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	19.589	34.121	227.3	0.037	24.199	2.539
10	19.584	34.130	226.7	0.371	24.207	2.543
20	18.503	34.065	234.3	0.729	24.432	2.214
30	18.043	34.029	237.0	1.075	24.519	2.070
50	16.739	34.057	194.3	1.716	24.854	1.774
75	14.791	34.128	97.2	2.425	25.348	1.384
100	13.364	34.326	49.8	3.026	25.801	1.235
125	12.498	34.426	35.9	3.546	26.050	1.139
150	12.213	34.499	28.2	4.029	26.163	1.140
200	11.603	34.639	12.7	4.916	26.388	1.132
250	10.884	34.620	8.6	5.733	26.506	0.985
300	9.835	34.486	17.7	6.502	26.584	0.696
400	9.167	34.535	5.1	7.944	26.735	0.624
500	7.888	34.519	2.8	9.236	26.920	0.413
600	6.992	34.507	2.3	10.399	27.039	0.275
700	6.125	34.504	2.6	11.452	27.152	0.157
800	5.447	34.506	4.5	12.424	27.239	0.076
900	4.881	34.522	6.8	13.308	27.318	0.022
1000	4.370	34.539	11.4	14.119	27.389	-0.020
1010	4.351	34.539	11.8	14.198	27.391	-0.023

Station: 65 **Date:** 4/25/2013, 0306 **Lat.:** 22° 54.71 N **Long.:** 110° 32.46 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.044	34.254	221.6	0.037	24.181	2.761
10	20.023	34.252	222.5	0.373	24.186	2.753
20	19.961	34.249	221.0	0.745	24.201	2.735
30	19.739	34.238	222.7	1.115	24.250	2.666
50	17.217	34.083	215.7	1.802	24.761	1.909
75	15.079	34.097	109.0	2.543	25.261	1.423
100	13.603	34.241	62.6	3.173	25.686	1.218
125	12.545	34.411	37.4	3.711	26.030	1.136
150	11.927	34.511	27.2	4.188	26.226	1.094
200	11.646	34.638	11.5	5.061	26.379	1.139
250	10.339	34.496	21.5	5.871	26.505	0.792
300	9.721	34.485	16.4	6.639	26.602	0.677
400	8.771	34.509	6.2	8.047	26.777	0.541
500	7.733	34.507	2.9	9.309	26.934	0.381
600	6.816	34.508	2.3	10.456	27.064	0.252
700	5.830	34.500	3.8	11.474	27.186	0.118
800	5.438	34.512	3.6	12.418	27.245	0.080
900	4.845	34.520	7.4	13.316	27.321	0.017
954	4.513	34.532	10.0	13.762	27.368	-0.010

Station: 66 **Date:** 4/25/2013, 0445 **Lat.:** 22° 53.13 N **Long.:** 110° 38.76 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.115	34.249	222.3	0.037	24.159	2.776
10	20.113	34.248	221.7	0.375	24.159	2.774
20	19.965	34.239	219.8	0.750	24.192	2.728
30	18.222	34.058	233.5	1.103	24.497	2.137
50	16.479	34.014	191.3	1.752	24.881	1.679
75	14.072	34.168	79.3	2.449	25.531	1.260
100	13.211	34.394	40.1	3.027	25.884	1.257
125	12.439	34.423	34.9	3.539	26.060	1.125
150	12.135	34.523	26.9	4.015	26.196	1.143
200	11.704	34.635	11.4	4.897	26.367	1.148
250	11.220	34.696	2.6	5.713	26.504	1.105
300	10.032	34.535	12.9	6.482	26.589	0.768
400	8.841	34.506	6.7	7.914	26.764	0.549
500	8.016	34.529	2.3	9.202	26.910	0.440
600	6.907	34.504	2.6	10.365	27.048	0.261
700	6.021	34.496	3.5	11.404	27.160	0.139
800	5.346	34.499	5.3	12.362	27.246	0.059
900	4.817	34.519	7.5	13.246	27.323	0.013
1000	4.410	34.536	11.2	14.062	27.382	-0.019
1012	4.365	34.539	11.8	14.156	27.389	-0.021

Station: 67 **Date:** 4/25/2013, 0609 **Lat.:** 22° 51.51 N **Long.:** 110° 44.82 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	20.166	34.273	220.4	0.037	24.163	2.808
10	20.172	34.272	221.2	0.375	24.162	2.808
20	19.801	34.275	223.0	0.748	24.262	2.712
30	17.354	34.003	228.3	1.095	24.666	1.881
50	15.608	34.091	136.0	1.696	25.138	1.538
75	14.226	34.125	88.7	2.368	25.466	1.259
100	13.412	34.379	42.5	2.955	25.831	1.286
125	12.485	34.446	33.2	3.472	26.069	1.152
150	12.580	34.680	9.2	3.940	26.232	1.352
200	11.938	34.727	3.2	4.807	26.394	1.264
250	11.325	34.696	2.6	5.625	26.485	1.123
300	10.989	34.695	2.0	6.415	26.546	1.061
400	9.207	34.559	3.4	7.861	26.747	0.648
500	7.779	34.523	2.3	9.147	26.939	0.400
600	6.886	34.503	2.7	10.288	27.050	0.258
700	6.069	34.498	3.4	11.325	27.155	0.146
800	5.297	34.507	5.2	12.271	27.258	0.059
900	4.800	34.522	7.5	13.141	27.327	0.013
1000	4.483	34.533	10.3	13.961	27.372	-0.013
1010	4.437	34.535	10.9	14.041	27.378	-0.017

Station: 68 **Date:** 4/25/2013, 1958 **Lat.:** 23° 59.85 N **Long.:** 112° 19.70 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	18.501	33.952	229.1	0.036	24.346	2.127
10	18.478	33.963	229.7	0.357	24.360	2.129
20	18.489	33.985	228.9	0.712	24.375	2.148
30	18.501	34.002	228.8	1.067	24.386	2.165
50	16.707	33.892	234.6	1.752	24.735	1.638
75	13.883	33.773	157.1	2.500	25.266	0.911
100	12.475	34.064	83.5	3.097	25.774	0.852
125	11.826	34.396	40.4	3.607	26.156	0.986
150	11.671	34.544	19.7	4.062	26.301	1.072
200	11.135	34.618	8.4	4.899	26.458	1.030
250	10.430	34.585	8.3	5.684	26.559	0.877
300	9.850	34.578	4.9	6.427	26.654	0.771
400	8.830	34.541	2.9	7.785	26.793	0.575
500	7.620	34.498	2.9	9.043	26.943	0.358
600	6.772	34.490	3.0	10.176	27.056	0.232
700	5.930	34.490	3.9	11.210	27.167	0.123
800	5.340	34.499	5.6	12.163	27.246	0.057
900	4.822	34.512	8.4	13.042	27.317	0.008
1000	4.399	34.528	12.2	13.864	27.377	-0.026
1059	4.199	34.538	15.1	14.326	27.407	-0.040

Station: 69 **Date:** 4/26/2013, 0522 **Lat.:** 25° 00.01 N **Long.:** 112° 57.48 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	17.696	33.783	234.6	0.035	24.414	1.794
10	17.700	33.782	234.6	0.351	24.413	1.794
20	17.698	33.782	234.7	0.702	24.414	1.793
30	17.328	33.815	237.7	1.049	24.528	1.728
50	15.705	33.823	218.4	1.700	24.910	1.351
75	13.194	33.784	143.2	2.389	25.414	0.776
100	12.498	34.013	92.3	2.996	25.729	0.816
125	11.541	34.143	77.4	3.526	26.013	0.734
150	11.204	34.304	56.5	4.006	26.200	0.798
200	11.035	34.579	14.3	4.862	26.446	0.981
250	10.116	34.523	14.6	5.646	26.565	0.775
300	9.567	34.528	9.0	6.381	26.662	0.685
400	8.309	34.495	5.0	7.736	26.837	0.458
500	7.320	34.460	4.7	8.957	26.955	0.285
600	6.525	34.474	3.8	10.093	27.076	0.187
700	5.756	34.477	5.1	11.111	27.177	0.091
800	5.092	34.500	7.1	12.040	27.276	0.030
900	4.674	34.502	11.0	12.901	27.326	-0.016
1000	4.351	34.514	14.7	13.724	27.371	-0.042
1011	4.312	34.517	15.4	13.812	27.377	-0.044

Station: 70 **Date:** 4/26/2013, 1524 **Lat.:** 26° 00.05 N **Long.:** 113° 40.63 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	16.993	33.677	235.8	0.034	24.501	1.541
10	16.986	33.677	236.6	0.342	24.502	1.538
20	16.927	33.672	237.2	0.685	24.513	1.520
30	15.537	33.593	242.9	1.016	24.770	1.133
50	13.973	33.526	220.6	1.623	25.056	0.736
75	12.287	33.681	148.6	2.296	25.512	0.514
100	11.354	33.950	83.2	2.875	25.896	0.548
125	11.432	34.314	38.3	3.370	26.166	0.848
150	11.124	34.417	32.7	3.820	26.302	0.871
200	10.679	34.498	21.2	4.649	26.446	0.854
250	10.384	34.550	11.6	5.439	26.540	0.842
300	9.727	34.525	9.2	6.192	26.633	0.709
400	8.065	34.459	7.1	7.552	26.845	0.393
500	7.343	34.444	5.6	8.777	26.940	0.276
600	6.333	34.445	5.0	9.896	27.079	0.140
700	5.655	34.462	6.3	10.915	27.178	0.067
800	5.223	34.474	7.9	11.856	27.240	0.024
900	4.775	34.483	11.3	12.752	27.300	-0.020
1000	4.440	34.499	14.8	13.599	27.349	-0.045
1009	4.405	34.502	15.2	13.673	27.355	-0.046

Station: 71 **Date:** 4/27/2013, 0213 **Lat.:** 26° 59.86 N **Long.:** 114° 30.52 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	15.835	33.642	262.0	0.032	24.741	1.241
10	15.820	33.641	262.7	0.320	24.744	1.236
20	15.651	33.643	264.2	0.638	24.783	1.198
30	14.706	33.597	234.1	0.947	24.955	0.951
50	12.924	33.579	178.9	1.505	25.309	0.561
75	11.661	33.907	116.7	2.099	25.805	0.572
100	10.644	33.946	101.2	2.625	26.020	0.416
125	10.588	34.141	75.8	3.107	26.183	0.559
150	10.602	34.252	58.9	3.559	26.267	0.648
200	10.489	34.437	30.2	4.411	26.432	0.773
250	10.045	34.488	18.1	5.199	26.549	0.735
300	9.513	34.504	10.3	5.942	26.652	0.657
400	8.364	34.462	7.9	7.314	26.803	0.441
500	7.280	34.426	6.4	8.559	26.935	0.253
600	6.284	34.437	5.3	9.683	27.078	0.127
700	5.714	34.445	6.4	10.708	27.158	0.061
800	5.146	34.465	8.7	11.662	27.241	0.008
900	4.738	34.479	12.0	12.547	27.300	-0.027
1000	4.347	34.501	15.9	13.390	27.361	-0.052
1016	4.243	34.507	17.4	13.517	27.377	-0.059

Station: 72 **Date:** 4/27/2013, 1525 **Lat.:** 28° 01.85 N **Long.:** 115° 42.93 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	15.455	33.599	256.5	0.031	24.792	1.120
10	15.444	33.599	258.1	0.315	24.795	1.117
20	15.208	33.601	259.2	0.627	24.849	1.065
30	14.217	33.602	249.8	0.922	25.063	0.849
50	12.502	33.603	185.1	1.476	25.409	0.495
75	10.231	33.823	123.8	2.043	25.995	0.247
100	10.296	34.071	79.3	2.531	26.178	0.453
125	10.612	34.258	48.3	2.985	26.269	0.655
150	10.608	34.328	41.1	3.421	26.325	0.709
200	10.457	34.384	33.3	4.269	26.396	0.726
250	10.160	34.430	26.3	5.085	26.485	0.709
300	9.629	34.442	20.7	5.853	26.584	0.628
400	8.314	34.419	12.6	7.252	26.777	0.399
500	7.401	34.416	7.4	8.526	26.909	0.262
600	6.347	34.411	6.5	9.680	27.050	0.114
700	5.611	34.402	8.6	10.726	27.136	0.014
800	5.079	34.439	10.0	11.690	27.229	-0.020
900	4.556	34.470	14.3	12.580	27.313	-0.054
1000	4.162	34.500	18.9	13.401	27.380	-0.072
1010	4.092	34.505	19.8	13.479	27.391	-0.076

Station: 73 **Date:** 4/28/2013, 1957 **Lat.:** 30° 57.82 N **Long.:** 116° 34.25 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	16.022	33.593	249.8	0.033	24.661	1.246
10	15.997	33.592	249.8	0.327	24.666	1.239
20	15.084	33.579	254.5	0.649	24.859	1.020
30	11.842	33.439	199.4	0.925	25.407	0.237
50	10.845	33.610	148.4	1.410	25.722	0.188
75	10.137	33.798	117.9	1.945	25.991	0.211
100	9.568	33.908	120.5	2.429	26.173	0.201
125	9.300	34.019	102.1	2.878	26.304	0.244
150	9.253	34.072	97.6	3.305	26.354	0.278
200	8.763	34.160	69.3	4.116	26.501	0.268
250	8.358	34.195	56.2	4.876	26.592	0.232
300	8.343	34.306	31.5	5.594	26.682	0.316
400	7.639	34.308	23.3	6.956	26.789	0.212
500	6.656	34.325	14.4	8.217	26.940	0.088
600	5.963	34.362	9.9	9.337	27.060	0.027
700	5.293	34.402	9.9	10.357	27.174	-0.023
800	4.803	34.437	12.4	11.288	27.259	-0.052
900	4.423	34.465	16.2	12.152	27.323	-0.072
1000	4.113	34.487	20.4	12.963	27.374	-0.088
1009	4.114	34.487	20.3	13.034	27.374	-0.088

Station: 74 **Date:** 4/29/2013, 0455 **Lat.:** 31° 58.89 N **Long.:** 117° 08.09 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	16.539	33.616	257.0	0.034	24.560	1.385
10	16.078	33.580	256.2	0.336	24.639	1.248
20	13.903	33.535	247.1	0.643	25.076	0.729
30	12.101	33.453	201.4	0.911	25.370	0.298
50	10.955	33.559	165.1	1.400	25.663	0.167
75	10.163	33.666	143.3	1.967	25.884	0.110
100	9.900	33.902	95.5	2.459	26.113	0.252
125	9.731	33.983	86.3	2.926	26.205	0.287
150	9.420	34.072	82.8	3.367	26.327	0.305
200	9.272	34.228	51.9	4.185	26.474	0.403
250	8.900	34.263	44.6	4.961	26.561	0.370
300	8.187	34.251	40.5	5.693	26.663	0.250
400	7.452	34.294	24.0	7.036	26.805	0.174
500	6.619	34.317	15.1	8.280	26.939	0.077
600	6.042	34.354	10.2	9.408	27.044	0.031
700	5.419	34.389	9.4	10.451	27.148	-0.019
800	4.899	34.429	11.5	11.403	27.241	-0.048
900	4.575	34.454	14.5	12.290	27.298	-0.065
1000	4.216	34.479	19.0	13.117	27.357	-0.084
1011	4.181	34.482	19.4	13.205	27.363	-0.085

Station: 75 **Date:** 4/29/2013, 1012 **Lat.:** 32° 33.47 N **Long.:** 117° 26.96 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	17.139	33.619	249.7	0.035	24.422	1.530
10	16.494	33.593	254.9	0.346	24.553	1.355
20	13.791	33.550	262.2	0.651	25.111	0.717
30	12.257	33.463	214.9	0.921	25.347	0.336
50	10.637	33.553	164.4	1.408	25.714	0.105
75	10.134	33.796	123.6	1.945	25.991	0.208
100	9.675	33.953	100.1	2.426	26.190	0.254
125	9.012	33.958	113.8	2.870	26.302	0.149
150	8.999	34.047	97.8	3.293	26.375	0.217
200	9.193	34.232	52.7	4.102	26.489	0.393
250	8.720	34.254	44.6	4.870	26.582	0.334
300	7.996	34.245	39.8	5.595	26.686	0.216
400	7.448	34.301	22.9	6.944	26.811	0.179
500	6.554	34.323	14.3	8.186	26.952	0.073
600	6.060	34.348	10.5	9.321	27.037	0.028
700	5.329	34.391	9.8	10.354	27.161	-0.027
800	4.879	34.426	11.7	11.302	27.242	-0.052
900	4.576	34.450	14.4	12.191	27.295	-0.068
1000	4.269	34.473	18.0	13.033	27.347	-0.083
1010	4.231	34.476	18.6	13.115	27.353	-0.085

Station: 76 **Date:** 4/30/2013, 2224 **Lat.:** 33° 00.00 N **Long.:** 117° 59.08 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	16.593	33.530	243.5	0.034	24.482	1.330
10	16.051	33.503	248.7	0.342	24.585	1.181
20	15.721	33.500	251.3	0.671	24.658	1.103
30	15.191	33.482	255.2	0.997	24.761	0.968
50	12.187	33.400	218.7	1.567	25.313	0.273
75	10.850	33.563	160.6	2.187	25.685	0.150
100	10.143	33.687	140.5	2.730	25.905	0.123
125	9.723	33.822	122.2	3.237	26.081	0.158
150	9.243	33.972	104.5	3.699	26.277	0.197
200	8.743	34.128	74.8	4.525	26.479	0.240
250	8.551	34.226	50.1	5.294	26.587	0.286
300	8.080	34.249	38.5	6.018	26.677	0.232
400	7.152	34.272	24.4	7.351	26.830	0.115
500	6.410	34.311	14.6	8.567	26.961	0.045
600	5.693	34.361	9.6	9.668	27.093	-0.007
700	5.188	34.400	9.7	10.665	27.184	-0.037
800	4.769	34.432	11.4	11.590	27.258	-0.060
900	4.386	34.463	14.7	12.454	27.326	-0.078
928	4.279	34.472	14.6	12.684	27.344	-0.082

Station: 77 **Date:** 5/02/2013, 0117 **Lat.:** 35° 24.96 N **Long.:** 121° 37.67 W

P(dbar)	T(°C)	S	O_2(μm/kg)	ΔΦ	σ_θ	π_θ
0	11.909	33.689	263.3	0.024	25.588	0.449
10	11.556	33.691	261.2	0.236	25.656	0.384
20	11.268	33.703	249.1	0.466	25.718	0.339
30	10.772	33.708	202.6	0.688	25.810	0.252
50	10.174	33.752	180.2	1.114	25.949	0.181
75	9.530	33.795	129.9	1.604	26.091	0.105
100	8.892	33.874	117.4	2.060	26.255	0.064
125	8.575	33.957	107.3	2.488	26.370	0.080
150	8.318	34.017	92.7	2.896	26.456	0.087
200	8.142	34.091	65.6	3.670	26.542	0.118
250	7.582	34.138	50.3	4.398	26.662	0.072
300	7.224	34.171	39.2	5.089	26.739	0.047
400	6.781	34.232	25.3	6.396	26.849	0.033
500	6.061	34.291	14.6	7.575	26.991	-0.015
600	5.618	34.323	11.4	8.675	27.071	-0.046
700	5.185	34.365	9.9	9.697	27.157	-0.065
800	4.723	34.404	11.4	10.641	27.241	-0.087
900	4.314	34.442	15.1	11.510	27.316	-0.102
1000	4.065	34.459	17.8	12.333	27.357	-0.115
1009	4.048	34.460	18.1	12.406	27.360	-0.116

Appendix 4. **Apéndice 4**

Table 4: *The results of the nutrient analyses of the water samples collected from the Niskin bottles tripped at each hydrographic station during the PESCAR24 cruise of April 2013 are listed here in chronological order.*

Tabla 4: *Los resultados de los análisis de nutrientes de las muestras de agua recogidas de las botellas Niskin disparadas en cada estación hidrográfica durante el crucero de PESCAR24 de abril de 2013 se listan aquí en orden cronológico.*

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (µm/kg)	Nitrite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phosphate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	109	1	24.150	-107.654	2.516	22.4106	34.822	215.484	0.00	0.00	0.58	3.30
2013	109	1	24.150	-107.654	35.853	17.6639	34.819	154.878	0.39	9.68	1.47	10.58
2013	109	1	24.150	-107.654	35.363	17.8557	34.829	160.874	0.39	10.28	1.76	11.02
2013	109	1	24.150	-107.654	40.877	16.1500	34.670	103.461	0.32	15.29	1.95	15.20
2013	109	1	24.150	-107.654	40.558	16.2918	34.682	109.316	0.34	15.45	1.96	14.98
2013	109	2	24.085	-107.778	2.236	22.2670	34.797	210.598	0.01	-0.04	0.69	2.65
2013	109	2	24.085	-107.778	5.084	22.2621	34.796	210.932	0.00	0.00	0.80	3.49
2013	109	2	24.085	-107.778	9.683	22.2814	34.810	210.586	0.01	0.05	0.73	3.70
2013	109	2	24.085	-107.778	19.923	22.2640	34.840	209.724	0.04	0.74	1.02	4.59
2013	109	2	24.085	-107.778	31.837	18.8624	34.856	141.814	0.59	6.59	1.54	8.16
2013	109	2	24.085	-107.778	39.707	16.0818	34.782	102.869	0.13	20.49	2.09	21.64
2013	109	2	24.085	-107.778	61.132	14.4591	34.797	48.117	0.07	23.85	2.70	29.01
2013	109	2	24.085	-107.778	70.744	13.9638	34.851	31.793	0.05	25.04	2.76	35.20
2013	109	3	24.040	-107.870	1.741	22.4721	34.922	214.372	0.00	0.05	0.67	3.96
2013	109	3	24.040	-107.870	31.894	20.0336	34.948	195.279	0.12	3.14	1.17	6.48
2013	109	3	24.040	-107.870	51.127	15.7109	34.792	61.194	0.05	20.30	2.48	22.43
2013	109	3	24.040	-107.870	102.641	12.3656	34.768	7.603	0.04	26.15	2.48	37.36
2013	109	3	24.040	-107.870	124.435	11.9561	34.730	2.486	0.03	23.78	2.89	34.85
2013	109	3	24.040	-107.870	163.365	11.4903	34.711	1.783	0.03	23.96	3.03	35.70
2013	109	4	23.997	-107.961	-----	------	-----	-----	0.00	0.31	0.74	3.26
2013	109	4	23.997	-107.961	2.051	22.4842	34.926	214.914	0.00	0.03	1.03	2.75
2013	109	4	23.997	-107.961	9.723	22.4832	34.926	215.222	0.00	0.02	0.57	2.73
2013	109	4	23.997	-107.961	19.831	22.4519	34.925	214.715	0.00	0.01	0.89	3.12
2013	109	4	23.997	-107.961	39.652	18.8354	34.878	131.260	0.63	8.66	2.24	11.08

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	109	4	23.997	-107.961	60.809	16.2632	34.915	94.855	0.10	18.65	2.29	21.45
2013	109	4	23.997	-107.961	100.339	12.1019	34.743	4.832	0.00	25.90	2.66	37.25
2013	109	4	23.997	-107.961	149.703	11.4468	34.704	1.956	0.00	25.38	2.72	37.87
2013	109	4	23.997	-107.961	302.518	9.7594	34.605	1.709	0.06	27.78	2.69	45.60
2013	109	4	23.997	-107.961	415.718	8.2527	34.544	1.770	0.01	31.84	3.27	60.11
2013	109	5	23.952	-108.052	2.444	22.4438	34.840	213.908	0.02	0.03	0.74	3.32
2013	109	5	23.952	-108.052	10.313	22.4464	34.870	214.334	0.00	0.14	0.76	3.13
2013	109	5	23.952	-108.052	45.976	17.8554	34.869	130.537	0.45	12.71	2.11	14.34
2013	109	5	23.952	-108.052	75.103	15.1822	34.868	73.447	0.08	22.09	2.68	28.10
2013	109	5	23.952	-108.052	101.627	13.4253	34.755	15.967	0.05	24.12	2.95	34.73
2013	109	5	23.952	-108.052	150.9	11.5200	34.714	2.961	0.05	25.97	2.97	38.44
2013	109	5	23.952	-108.052	202.59	11.0451	34.679	1.896	0.01	26.02	3.15	39.93
2013	109	5	23.952	-108.052	403.41	8.4436	34.549	1.685	0.05	32.08	3.07	58.62
2013	109	5	23.952	-108.052	604.759	6.7952	34.515	1.724	0.00	36.95	3.45	72.70
2013	109	5	23.952	-108.052	676.495	6.2294	34.509	1.854	0.04	38.42	3.46	79.81
2013	109	6	23.906	-108.144	2.763	22.5945	34.949	212.981	0.04	0.03	0.61	3.15
2013	109	6	23.906	-108.144	9.455	22.5711	34.951	212.970	0.03	0.08	0.59	3.21
2013	109	6	23.906	-108.144	21.1	20.3039	35.120	226.459	0.24	1.96	0.99	4.92
2013	109	6	23.906	-108.144	39.112	18.8964	35.241	199.215	0.22	7.76	1.38	7.72
2013	109	6	23.906	-108.144	60.089	17.9041	35.214	171.142	0.08	12.75	1.46	12.79
2013	109	6	23.906	-108.144	74.512	17.2942	35.234	177.218	0.05	13.28	1.71	12.52
2013	109	6	23.906	-108.144	101.084	16.0186	35.111	127.957	0.05	18.74	2.14	22.25
2013	109	6	23.906	-108.144	125.56	13.5384	34.811	18.720	0.03	25.82	2.83	34.97
2013	109	6	23.906	-108.144	150.843	12.4324	34.774	7.519	0.04	25.86	2.77	37.22
2013	109	6	23.906	-108.144	723.582	5.9204	34.507	2.029	0.07	38.19	3.55	78.40
2013	109	7	23.862	-108.234	2.155	21.8054	34.637	215.094	0.03	0.20	0.57	2.48
2013	109	7	23.862	-108.234	24.693	19.0404	35.221	209.408	0.86	5.31	1.32	6.28
2013	109	7	23.862	-108.234	33.842	18.7573	35.247	195.126	0.12	7.71	1.34	7.02
2013	109	7	23.862	-108.234	74.537	17.4013	35.227	169.316	0.05	14.18	2.18	15.99
2013	109	7	23.862	-108.234	99.589	16.9291	35.264	183.440	0.05	15.26	1.86	16.16
2013	109	7	23.862	-108.234	151.042	13.7343	34.844	23.064	0.02	25.81	3.02	36.01
2013	109	7	23.862	-108.234	201.08	12.1940	34.770	8.684	0.02	26.05	2.76	37.95

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	109	7	23.862	-108.234	252.758	11.2642	34.708	2.612	0.02	24.77	2.73	36.80
2013	109	7	23.862	-108.234	303.446	10.5209	34.656	2.024	0.02	26.04	2.81	40.59
2013	109	7	23.862	-108.234	402.645	8.8275	34.553	2.124	0.01	31.56	2.95	52.69
2013	109	7	23.862	-108.234	504.28	7.8333	34.525	1.879	0.01	34.63	3.08	62.14
2013	109	7	23.862	-108.234	549.412	7.2670	34.518	1.818	0.03	35.44	3.22	67.24
2013	109	8	23.822	-108.331	4.13	22.4758	35.005	184.441	0.03	0.13	0.72	3.15
2013	109	8	23.822	-108.331	6.108	22.4757	35.004	182.067	0.04	0.14	0.91	2.87
2013	109	8	23.822	-108.331	10.253	22.4687	35.008	181.338	0.04	0.14	0.85	3.37
2013	109	8	23.822	-108.331	19.721	19.9014	35.134	187.048	0.28	2.27	1.23	7.49
2013	109	8	23.822	-108.331	33.75	19.1285	35.240	174.554	0.86	4.54	1.20	6.61
2013	109	8	23.822	-108.331	61.045	18.2765	35.233	130.809	0.11	10.34	1.47	10.04
2013	109	8	23.822	-108.331	101.205	17.1393	35.278	135.772	0.03	14.03	1.92	15.88
2013	109	8	23.822	-108.331	154.85	14.6995	34.940	-----	0.05	23.10	2.44	30.91
2013	109	8	23.822	-108.331	912.504	4.8949	34.521	-----	0.07	43.33	3.45	99.31
2013	110	9	23.776	-108.412	35.355	18.8744	35.225	196.355	0.44	6.84	1.48	6.75
2013	110	9	23.776	-108.412	51.163	18.6047	35.237	187.529	0.14	9.59	1.60	8.83
2013	110	9	23.776	-108.412	102.26	16.9231	35.193	162.132	0.02	15.41	1.89	14.96
2013	110	9	23.776	-108.412	151.209	13.8243	34.862	28.003	0.03	25.77	2.71	35.88
2013	110	9	23.776	-108.412	201.087	12.3706	34.775	7.482	0.02	26.33	2.99	36.99
2013	110	9	23.776	-108.412	404.144	9.0604	34.567	2.317	0.01	30.52	2.90	50.01
2013	110	9	23.776	-108.412	607.455	6.6759	34.516	2.014	0.03	35.64	3.06	67.60
2013	110	9	23.776	-108.412	807.492	5.4450	34.514	3.820	0.01	42.55	3.07	88.18
2013	110	9	23.776	-108.412	1777.104	2.6393	34.617	49.823	0.03	41.46	3.03	139.03
2013	110	10	23.730	-108.511	4.68	22.0308	34.961	213.333	0.02	0.19	0.54	3.33
2013	110	10	23.730	-108.511	10.585	22.0401	34.961	213.970	0.10	1.08	1.00	3.57
2013	110	10	23.730	-108.511	20.796	21.6594	34.931	213.368	0.06	0.84	0.73	3.20
2013	110	10	23.730	-108.511	29.707	18.0780	34.588	180.338	0.36	6.12	1.07	7.33
2013	110	10	23.730	-108.511	40.725	17.4645	34.675	160.426	0.40	9.48	1.61	9.04
2013	110	10	23.730	-108.511	59.527	17.8092	35.032	161.119	0.14	11.07	1.49	10.30
2013	110	10	23.730	-108.511	98.841	14.5953	34.664	63.757	0.03	22.43	2.39	24.13
2013	110	10	23.730	-108.511	807.722	5.4249	34.515	4.308	0.01	42.04	3.19	90.14
2013	110	10	23.730	-108.511	1009.401	4.6892	34.529	12.023	0.07	42.13	3.30	94.48

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (^{o}C)	Salinity	Oxygen (μm/kg)	Nit-rite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phos-phate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	110	10	23.730	-108.511	2808.284	1.8353	34.663	83.505	0.01	39.43	2.88	154.69
2013	110	11	23.687	-108.605	2709.344	1.8413	34.663	95.731	0.01	37.58	2.84	137.50
2013	110	11	23.687	-108.605	2733.06	1.8368	34.663	95.341	0.04	40.09	3.17	149.13
2013	110	12	23.638	-108.690	1.973	22.5062	35.086	213.007	0.04	0.16	0.96	3.09
2013	110	12	23.638	-108.690	10.409	22.3263	35.084	213.035	0.04	0.36	0.83	3.49
2013	110	12	23.638	-108.690	20.239	22.3029	35.085	212.754	0.01	0.18	1.00	2.72
2013	110	12	23.638	-108.690	40.3	18.2895	34.640	176.158	0.48	7.09	1.30	7.25
2013	110	12	23.638	-108.690	58.947	16.4546	34.520	116.176	0.31	14.64	1.79	12.06
2013	110	12	23.638	-108.690	100.68	14.0364	34.620	40.092	0.03	23.64	2.73	25.86
2013	110	12	23.638	-108.690	605.63	6.7934	34.489	2.842	0.00	36.33	3.18	65.85
2013	110	12	23.638	-108.690	1008.575	4.4214	34.533	11.112	0.00	43.77	3.36	101.37
2013	110	12	23.638	-108.690	1514.284	3.1323	34.595	37.513	0.00	42.88	3.39	123.96
2013	110	12	23.638	-108.690	1674.945	2.7673	34.612	50.635	0.00	41.61	3.30	117.62
2013	110	13	23.598	-108.787	-----	-----	-----	-----	0.01	0.14	0.62	1.85
2013	110	13	23.598	-108.787	40.285	17.2253	34.216	158.812	0.26	9.50	1.28	8.47
2013	110	13	23.598	-108.787	61.148	15.5878	34.389	110.569	0.05	17.08	2.06	16.50
2013	110	13	23.598	-108.787	101.049	15.2018	34.963	76.802	0.02	22.96	2.60	28.59
2013	110	13	23.598	-108.787	151.55	13.0087	34.780	10.887	0.05	26.10	2.85	32.76
2013	110	13	23.598	-108.787	201.948	12.1647	34.787	9.339	0.02	27.12	2.77	39.82
2013	110	13	23.598	-108.787	403.87	9.1275	34.586	2.109	0.03	29.79	3.04	48.91
2013	110	13	23.598	-108.787	604.337	6.8534	34.493	2.837	0.00	37.47	3.09	68.18
2013	110	13	23.598	-108.787	807.687	5.4979	34.498	4.675	0.01	35.72	3.04	79.09
2013	110	13	23.598	-108.787	1598.27	2.9620	34.603	41.830	0.02	42.87	3.14	138.29
2013	110	14	23.574	-108.876	101.57	14.4493	34.786	62.047	0.02	23.35	2.44	27.52
2013	110	14	23.574	-108.876	302.192	10.5011	34.630	2.868	0.04	26.92	3.12	38.68
2013	110	14	23.574	-108.876	505.194	7.9024	34.521	2.297	0.02	34.06	3.14	56.39
2013	110	14	23.574	-108.876	708.138	6.1510	34.500	2.986	0.01	40.50	3.12	76.36
2013	110	14	23.574	-108.876	1009.083	4.5060	34.527	10.604	0.02	35.60	3.08	81.23
2013	110	14	23.574	-108.876	1514.82	3.1947	34.592	36.656	0.00	39.79	3.10	123.61
2013	110	14	23.574	-108.876	2024.154	2.2429	34.638	74.800	0.01	35.31	2.76	124.69
2013	110	14	23.574	-108.876	2282.818	1.9596	34.655	87.893	0.02	35.38	2.81	134.61
2013	110	15	23.554	-108.970	2.973	21.6797	34.408	214.668	0.02	0.17	0.36	1.62

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	110	15	23.554	-108.970	40.196	18.2587	34.452	187.323	0.24	4.30	1.02	6.11
2013	110	15	23.554	-108.970	101.346	14.1830	34.611	37.041	0.04	24.00	2.58	26.11
2013	110	15	23.554	-108.970	150.925	12.4329	34.658	7.826	0.01	25.69	2.69	32.19
2013	110	15	23.554	-108.970	201.474	12.1310	34.776	8.592	0.02	23.51	2.71	34.41
2013	110	15	23.554	-108.970	402.628	8.9967	34.533	4.425	0.02	31.39	2.98	48.26
2013	110	15	23.554	-108.970	604.435	6.7841	34.488	3.109	0.04	35.68	2.98	63.08
2013	110	15	23.554	-108.970	805.974	5.4194	34.503	4.647	0.02	38.16	3.05	75.51
2013	110	15	23.554	-108.970	1513.869	3.1485	34.594	37.975	0.02	42.95	3.25	128.32
2013	110	15	23.554	-108.970	2171.668	2.0653	34.648	84.036	0.01	40.66	3.25	143.47
2013	111	17	23.513	-109.143	101.067	15.3568	34.949	85.451	0.03	21.96	2.27	26.17
2013	111	17	23.513	-109.143	150.671	13.4312	34.773	16.145	0.08	26.28	3.05	34.51
2013	111	17	23.513	-109.143	201.56	12.1587	34.735	3.864	0.02	26.42	3.21	35.46
2013	111	17	23.513	-109.143	403.148	8.8584	34.529	4.277	0.01	30.72	2.98	46.98
2013	111	17	23.513	-109.143	605.747	6.8948	34.510	2.212	0.03	33.16	3.12	62.64
2013	111	17	23.513	-109.143	807.179	5.3593	34.495	5.697	0.01	42.83	3.42	87.61
2013	111	17	23.513	-109.143	2346.034	1.9166	34.659	88.166	0.03	39.83	2.92	150.56
2013	111	18	23.490	-109.230	2.259	21.5515	34.947	215.432	0.01	0.03	0.50	3.75
2013	111	18	23.490	-109.230	10.003	21.2540	34.543	215.389	0.02	0.06	0.63	1.86
2013	111	18	23.490	-109.230	20.379	21.0690	34.510	214.981	0.01	0.21	0.53	2.31
2013	111	18	23.490	-109.230	34.615	18.4649	34.210	210.473	0.07	1.37	0.65	3.58
2013	111	18	23.490	-109.230	39.722	17.4555	34.208	177.069	0.36	5.33	1.06	5.85
2013	111	18	23.490	-109.230	60.351	18.4347	35.187	176.870	0.09	10.93	1.72	10.14
2013	111	18	23.490	-109.230	100.968	14.4703	34.822	58.923	0.03	23.83	2.84	28.82
2013	111	18	23.490	-109.230	147.904	13.1415	34.776	12.360	0.02	25.65	2.95	34.57
2013	111	18	23.490	-109.230	806.386	5.4929	34.509	3.886	0.01	42.80	3.51	91.31
2013	111	18	23.490	-109.230	1009.059	4.4850	34.535	9.936	0.02	42.57	3.47	104.39
2013	111	18	23.490	-109.230	1515.089	3.1516	34.595	36.895	0.04	42.97	3.44	138.27
2013	111	18	23.490	-109.230	1839.448	2.6254	34.619	57.045	0.05	41.86	3.37	146.63
2013	111	19	23.459	-109.301	65.206	17.4431	35.123	156.564	0.02	25.00	2.53	31.13
2013	111	19	23.459	-109.301	96.088	12.9140	34.553	29.881	0.09	16.52	2.09	16.97
2013	111	19	23.459	-109.301	151.383	12.7058	34.753	8.810	0.04	23.63	2.68	33.40
2013	111	19	23.459	-109.301	200.323	12.0219	34.740	5.609	0.04	23.47	2.87	34.36

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	111	19	23.459	-109.301	302.444	10.5393	34.666	2.829	0.02	27.74	2.96	46.75
2013	111	19	23.459	-109.301	403.181	9.4680	34.597	2.087	0.05	29.99	3.04	54.75
2013	111	19	23.459	-109.301	502.903	7.8744	34.511	2.812	0.02	35.04	3.06	64.11
2013	111	19	23.459	-109.301	605.062	6.9194	34.508	2.153	0.03	34.61	3.26	68.67
2013	111	19	23.459	-109.301	1008.829	4.5279	34.538	8.942	0.01	44.06	3.59	120.38
2013	111	19	23.459	-109.301	1362.417	3.4133	34.582	29.704	0.05	42.77	3.47	131.63
2013	111	20	23.449	-109.378	2.191	22.1732	34.647	215.150	0.02	0.02	0.51	2.92
2013	111	20	23.449	-109.378	10.552	21.3639	34.567	217.121	0.03	0.05	0.41	2.98
2013	111	20	23.449	-109.378	30.292	21.0085	34.495	215.485	0.06	1.24	0.63	4.14
2013	111	20	23.449	-109.378	40.702	19.1387	34.389	197.745	0.19	9.54	1.30	12.73
2013	111	20	23.449	-109.378	61.039	14.0940	34.576	46.948	0.04	22.21	2.43	25.66
2013	111	20	23.449	-109.378	81.148	13.6935	34.664	16.041	0.03	24.61	2.64	30.07
2013	111	20	23.449	-109.378	101.253	13.1663	34.661	19.673	0.02	25.46	2.75	35.01
2013	111	20	23.449	-109.378	151.918	12.4974	34.756	7.909	0.03	25.92	2.96	37.18
2013	111	20	23.449	-109.378	202.414	11.8839	34.732	4.911	0.02	25.30	2.86	37.68
2013	111	20	23.449	-109.378	302.634	10.6721	34.667	2.764	0.05	24.31	2.80	38.83
2013	111	20	23.449	-109.378	404.489	9.5907	34.591	2.879	0.05	16.75	1.94	22.02
2013	111	20	23.449	-109.378	453.543	8.6901	34.555	2.153	0.03	23.94	2.45	39.57
2013	112	26	23.798	-109.237	1.919	21.7696	34.621	216.319	0.03	0.11	0.64	7.40
2013	112	26	23.798	-109.237	24.382	19.8822	34.546	203.109	0.09	3.99	0.88	7.64
2013	112	26	23.798	-109.237	50.399	14.9262	34.440	62.327	0.05	20.48	2.09	20.37
2013	112	26	23.798	-109.237	100.883	13.3880	34.757	14.384	0.03	25.62	2.61	33.04
2013	112	26	23.798	-109.237	152.902	12.4465	34.795	10.962	0.07	27.01	2.99	40.36
2013	112	26	23.798	-109.237	201.083	11.7921	34.760	7.079	0.01	27.03	3.04	42.73
2013	112	26	23.798	-109.237	302.29	10.4569	34.672	3.040	0.02	27.61	3.11	46.95
2013	112	26	23.798	-109.237	403.633	9.4476	34.627	2.334	0.04	30.45	3.29	57.67
2013	112	26	23.798	-109.237	501.155	8.3290	34.569	1.871	0.02	33.18	3.26	64.77
2013	112	26	23.798	-109.237	603.216	7.1613	34.526	1.851	0.03	36.09	3.35	72.99
2013	112	26	23.798	-109.237	804.907	5.4791	34.508	3.825	0.04	41.61	3.50	90.92
2013	112	26	23.798	-109.237	1008.533	4.5480	34.533	8.939	0.02	39.83	3.37	87.48
2013	112	27	23.534	-109.055	1.867	21.3660	34.427	215.393	0.02	0.09	0.32	1.72
2013	112	27	23.534	-109.055	25.017	20.8098	34.377	216.309	0.02	0.20	0.46	2.00

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	112	27	23.534	-109.055	50.512	19.0620	35.212	204.654	0.96	6.31	1.42	6.35
2013	112	27	23.534	-109.055	101.4	16.4252	35.038	127.498	0.15	21.51	2.59	21.51
2013	112	27	23.534	-109.055	151.201	12.6519	34.706	7.700	0.04	25.81	2.66	30.92
2013	112	27	23.534	-109.055	201.04	11.7741	34.678	4.547	0.02	26.14	2.78	33.31
2013	112	27	23.534	-109.055	302.586	10.4727	34.633	2.903	0.04	27.40	2.90	39.82
2013	112	27	23.534	-109.055	403.674	9.0470	34.546	3.263	0.07	31.66	2.98	49.01
2013	112	27	23.534	-109.055	504.352	7.8712	34.510	2.717	0.03	33.93	3.04	56.47
2013	112	27	23.534	-109.055	605.788	6.9783	34.509	1.997	0.05	35.20	3.19	65.19
2013	112	27	23.534	-109.055	807.072	5.5317	34.507	3.581	0.02	42.32	3.47	88.17
2013	112	27	23.534	-109.055	1006.917	4.5515	34.526	9.791	0.02	40.10	3.45	83.69
2013	112	28	23.234	-108.963	1.664	22.7345	34.839	209.208	0.05	0.67	0.59	3.87
2013	112	28	23.234	-108.963	40.705	18.6087	34.745	118.936	0.52	11.47	1.78	14.13
2013	112	28	23.234	-108.963	50.787	17.7474	34.701	104.354	0.35	14.78	2.08	15.14
2013	112	28	23.234	-108.963	101.402	14.0114	34.689	9.930	0.04	23.42	2.90	28.96
2013	112	28	23.234	-108.963	152.424	12.4775	34.747	2.672	0.02	24.49	2.96	34.72
2013	112	28	23.234	-108.963	201.289	11.7402	34.718	2.772	0.02	25.76	2.95	37.83
2013	112	28	23.234	-108.963	302.264	10.2480	34.620	2.212	0.04	27.60	3.02	42.60
2013	112	28	23.234	-108.963	402.546	8.9629	34.559	2.287	0.02	31.30	3.16	52.21
2013	112	28	23.234	-108.963	503.988	7.8150	34.522	2.181	0.02	34.66	3.19	64.69
2013	112	28	23.234	-108.963	605.627	6.5971	34.473	3.742	0.03	38.80	3.31	75.56
2013	112	28	23.234	-108.963	807.482	5.3731	34.510	4.221	0.07	42.32	3.54	93.57
2013	112	28	23.234	-108.963	1008.877	4.4417	34.532	10.630	0.01	43.10	3.54	104.35
2013	112	32	23.233	-109.324	3.16	22.8574	34.860	211.894	0.01	0.04	0.59	2.17
2013	112	32	23.233	-109.324	10.289	22.2137	34.822	213.188	0.10	2.00	0.80	3.94
2013	112	32	23.233	-109.324	50.563	17.5553	34.915	154.754	0.13	14.63	1.69	14.11
2013	112	32	23.233	-109.324	100.778	12.7763	34.537	33.930	0.02	24.64	2.62	29.16
2013	112	33	23.233	-109.422	2.742	22.1608	34.722	216.097	0.01	0.02	0.43	2.34
2013	112	33	23.233	-109.422	10.212	21.8496	34.732	215.957	0.01	0.04	0.52	2.22
2013	112	33	23.233	-109.422	25.34	20.1470	34.487	202.732	0.09	3.31	0.74	5.25
2013	112	33	23.233	-109.422	39.057	16.0368	34.310	116.289	0.23	13.99	1.62	14.54
2013	112	34	23.039	-109.485	2.638	23.0184	34.927	212.538	0.02	0.11	0.56	2.75
2013	112	34	23.039	-109.485	20.584	22.2250	34.909	213.376	0.03	0.32	0.73	2.79

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	112	34	23.039	-109.485	40.709	16.5209	34.129	153.584	0.20	11.05	1.30	10.34
2013	112	34	23.039	-109.485	61.233	14.6939	34.295	75.931	0.11	20.49	2.20	19.85
2013	113	39	22.768	-109.124	2.285	21.3112	34.569	218.939	0.03	0.00	0.75	2.13
2013	113	39	22.768	-109.124	25.436	19.3514	34.463	216.866	0.16	5.06	1.24	6.39
2013	113	39	22.768	-109.124	50.716	15.3770	34.436	83.969	0.24	18.77	2.09	17.31
2013	113	39	22.768	-109.124	100.756	13.1796	34.583	17.039	0.04	24.28	2.85	28.29
2013	113	39	22.768	-109.124	150.734	12.4682	34.710	10.329	0.01	25.29	3.05	33.60
2013	113	39	22.768	-109.124	-----	-----	-----	-----	----	-----	----	-----
2013	113	39	22.768	-109.124	304.792	10.1144	34.600	4.255	0.04	26.56	3.15	40.75
2013	113	39	22.768	-109.124	402.799	8.7589	34.529	3.855	0.01	31.08	3.24	50.90
2013	113	39	22.768	-109.124	505.07	7.6519	34.512	2.403	0.03	34.36	3.36	63.59
2013	113	39	22.768	-109.124	605.341	6.6512	34.497	2.569	0.02	36.85	3.42	71.32
2013	113	39	22.768	-109.124	806.689	5.3373	34.508	4.521	0.02	0.00	1.26	3.36
2013	113	39	22.768	-109.124	1009.141	4.3877	34.536	11.222	0.02	41.67	3.54	97.92
2013	113	40	22.549	-109.413	2.15	20.4842	34.332	218.817	0.02	0.00	0.47	2.11
2013	113	40	22.549	-109.413	24.835	20.1673	34.307	220.752	0.11	0.40	0.67	2.93
2013	113	40	22.549	-109.413	50.238	17.3284	34.266	178.134	0.40	5.17	1.03	6.41
2013	113	40	22.549	-109.413	101.028	14.2063	34.691	26.583	0.05	24.13	2.71	28.19
2013	113	40	22.549	-109.413	150.039	12.7752	34.757	6.838	0.03	23.91	2.95	33.95
2013	113	40	22.549	-109.413	200.554	11.9010	34.734	2.464	0.35	22.17	2.83	32.13
2013	113	40	22.549	-109.413	302.635	10.4867	34.654	1.675	0.01	24.98	2.96	39.69
2013	113	40	22.549	-109.413	404.375	9.1600	34.566	2.406	0.06	28.68	3.21	48.31
2013	113	40	22.549	-109.413	503.257	7.9736	34.520	2.298	0.02	33.43	3.24	60.43
2013	113	40	22.549	-109.413	601.29	6.8087	34.490	2.978	0.01	35.60	3.21	67.47
2013	113	40	22.549	-109.413	807.828	5.4480	34.513	3.844	0.06	34.57	3.34	75.10
2013	113	40	22.549	-109.413	1010.377	4.4807	34.531	10.318	0.03	43.82	3.43	105.17
2013	113	46	22.948	-109.738	1.79	21.7902	34.667	213.730	0.03	0.11	0.56	2.49
2013	113	46	22.948	-109.738	30.609	19.5071	34.412	217.319	0.07	0.68	0.67	3.86
2013	113	46	22.948	-109.738	40.604	18.2561	34.385	187.662	0.24	4.91	0.99	7.01
2013	113	46	22.948	-109.738	55.13	15.9940	34.274	118.462	0.33	12.70	1.52	11.80
2013	113	46	22.948	-109.738	300.325	10.2724	34.631	2.498	0.02	27.29	2.98	42.82
2013	113	47	22.783	-109.933	1.82	20.1421	34.423	226.711	0.03	0.03	0.42	1.79

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	113	47	22.783	-109.933	35.768	17.6735	34.323	200.565	0.29	4.05	0.92	1.54
2013	113	47	22.783	-109.933	79.319	13.1069	34.140	82.868	0.07	22.12	2.22	22.57
2013	113	47	22.783	-109.933	120.379	12.4213	34.613	15.250	0.05	23.56	2.54	32.24
2013	113	47	22.783	-109.933	176.29	11.9290	34.716	4.629	0.02	25.48	3.02	38.92
2013	113	47	22.783	-109.933	706.271	6.1441	34.505	2.610	0.03	37.61	3.33	76.98
2013	114	53	22.286	-109.934	2.344	21.6534	34.562	213.712	0.03	0.00	0.41	2.54
2013	114	53	22.286	-109.934	25.207	20.7904	34.416	221.184	0.03	0.29	0.38	2.62
2013	114	53	22.286	-109.934	51.749	18.0849	34.429	161.985	0.33	8.28	1.29	8.35
2013	114	53	22.286	-109.934	100.405	13.4252	34.499	29.217	0.02	24.41	2.66	27.88
2013	114	53	22.286	-109.934	152.851	12.7332	34.735	7.809	0.02	24.73	2.85	32.23
2013	114	53	22.286	-109.934	204.241	11.8568	34.719	2.688	0.06	25.43	2.97	36.31
2013	114	53	22.286	-109.934	303.215	10.3598	34.637	1.898	0.02	26.54	3.07	42.58
2013	114	53	22.286	-109.934	404.128	8.9478	34.570	1.822	0.02	30.02	3.12	52.85
2013	114	53	22.286	-109.934	504.383	7.8284	34.527	1.943	0.01	33.48	3.33	61.93
2013	114	53	22.286	-109.934	603.979	6.8013	34.525	1.802	0.02	35.93	3.40	73.20
2013	114	53	22.286	-109.934	807.876	5.5913	34.523	2.393	0.03	37.11	3.40	78.91
2013	114	53	22.286	-109.934	1006.219	4.5605	34.537	8.607	0.01	42.44	3.47	101.14
2013	114	54	22.365	-110.333	2.247	20.8645	34.404	216.043	0.03	0.09	0.42	2.68
2013	114	54	22.365	-110.333	25.269	20.8755	34.402	216.257	0.04	0.42	0.48	3.18
2013	114	54	22.365	-110.333	50.727	19.6555	34.620	203.658	0.14	1.95	0.85	4.46
2013	114	54	22.365	-110.333	101.463	14.5730	34.595	53.410	0.03	20.87	2.20	20.74
2013	114	54	22.365	-110.333	151.221	11.7040	34.514	28.346	0.02	24.10	2.64	30.28
2013	114	54	22.365	-110.333	201.809	11.5791	34.650	9.017	0.03	25.45	2.79	34.97
2013	114	54	22.365	-110.333	302.044	9.8692	34.533	10.359	0.02	28.32	3.05	41.98
2013	114	54	22.365	-110.333	400.851	8.7309	34.533	3.606	0.02	30.95	3.14	52.08
2013	114	54	22.365	-110.333	503.253	7.3012	34.465	4.507	0.02	34.34	3.21	62.81
2013	114	54	22.365	-110.333	604.941	6.4403	34.463	4.441	0.01	39.19	3.36	74.23
2013	114	54	22.365	-110.333	808.966	5.3095	34.496	5.873	0.04	38.39	3.44	84.82
2013	114	54	22.365	-110.333	1010.785	4.4565	34.534	10.437	0.02	43.69	3.47	107.55
2013	114	61	22.947	-110.333	2.589	19.4959	34.095	229.018	0.04	-0.02	0.43	1.51
2013	114	61	22.947	-110.333	25.453	17.5642	34.079	225.183	0.05	0.11	0.88	4.12
2013	114	61	22.947	-110.333	49.213	16.3204	34.011	179.033	0.36	5.17	1.03	5.27

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	114	61	22.947	-110.333	100.192	12.6483	34.365	44.129	0.07	23.48	2.51	22.81
2013	114	61	22.947	-110.333	629.625	6.6315	34.498	3.018	0.06	37.27	3.36	68.66
2013	114	62	22.966	-110.247	3.231	19.6258	34.188	227.869	0.05	0.06	0.44	1.53
2013	114	62	22.966	-110.247	25.096	17.9698	34.132	235.330	0.05	0.25	0.63	0.76
2013	114	62	22.966	-110.247	51.048	14.7580	33.972	130.541	0.29	20.64	2.28	26.37
2013	114	62	22.966	-110.247	227.836	11.6608	34.723	1.621	0.63	23.56	2.83	30.76
2013	114	62	22.966	-110.247	413.353	9.1506	34.570	2.728	0.07	30.06	3.00	47.13
2013	115	64	22.936	-110.441	2.22	19.5671	34.118	226.121	0.01	0.00	0.32	1.85
2013	115	64	22.936	-110.441	45.239	17.4231	34.049	229.811	0.12	1.57	0.71	4.04
2013	115	64	22.936	-110.441	50.751	16.7439	34.040	201.007	0.29	5.29	0.96	5.55
2013	115	64	22.936	-110.441	100.39	13.4085	34.332	47.394	0.05	22.07	2.38	21.15
2013	115	64	22.936	-110.441	151.416	12.1585	34.534	23.528	0.05	25.24	2.56	27.86
2013	115	64	22.936	-110.441	202.227	11.5536	34.651	9.289	0.08	24.22	2.71	29.50
2013	115	64	22.936	-110.441	302.191	9.7895	34.491	15.744	0.04	29.22	3.04	41.73
2013	115	64	22.936	-110.441	402.327	9.0037	34.532	4.871	0.03	30.91	2.85	46.56
2013	115	64	22.936	-110.441	504.599	7.8725	34.524	2.255	0.04	34.79	3.20	58.82
2013	115	64	22.936	-110.441	605.071	6.9344	34.505	2.264	0.09	36.44	3.27	65.74
2013	115	64	22.936	-110.441	806.758	5.3812	34.506	5.119	0.03	39.26	3.19	85.35
2013	115	64	22.936	-110.441	1008.933	4.3439	34.540	11.995	0.03	34.11	3.06	89.75
2013	115	68	23.997	-112.328	2.728	18.3719	33.911	230.982	0.06	0.01	0.50	3.00
2013	115	68	23.997	-112.328	25.262	18.4589	33.988	229.454	0.03	0.07	0.41	2.54
2013	115	68	23.997	-112.328	60.029	15.9720	33.844	230.522	0.02	0.05	0.61	3.30
2013	115	68	23.997	-112.328	100.934	12.5204	34.048	86.695	0.05	21.44	2.02	19.75
2013	115	68	23.997	-112.328	151.157	11.6663	34.537	19.651	0.06	25.99	2.72	30.63
2013	115	68	23.997	-112.328	301.851	9.7675	34.575	4.333	0.02	28.24	3.01	41.23
2013	115	68	23.997	-112.328	402.987	8.8182	34.546	2.876	0.02	31.08	3.00	51.68
2013	115	68	23.997	-112.328	505.004	7.5386	34.505	2.650	0.05	35.24	3.30	60.00
2013	115	68	23.997	-112.328	605.456	6.6831	34.498	2.734	0.03	38.20	3.34	70.73
2013	115	68	23.997	-112.328	808.613	5.2796	34.501	5.919	0.02	36.43	3.31	82.37
2013	115	68	23.997	-112.328	1056.942	4.2020	34.538	15.069	0.02	42.58	3.44	96.27
2013	116	69	25.000	-112.958	2.853	17.6851	33.781	234.589	0.01	-0.00	0.38	3.02
2013	116	69	25.000	-112.958	25.25	17.4624	33.806	236.585	0.06	0.19	0.52	2.74

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temperature (°C)	Salinity	Oxygen (μm/kg)	Nitrite, NO2 (μm/kg)	Nitrate, NO3 (μm/kg)	Phosphate, PO4 (μm/kg)	Silicate, SiO4 (μm/kg)
2013	116	69	25.000	-112.958	50.125	16.0079	33.839	228.415	0.08	0.90	0.67	4.04
2013	116	69	25.000	-112.958	101.531	12.4725	34.030	87.584	0.05	19.36	1.85	17.62
2013	116	69	25.000	-112.958	152.355	11.0594	34.334	52.142	0.04	19.89	2.06	22.53
2013	116	69	25.000	-112.958	201.505	10.9869	34.581	12.680	0.04	25.68	2.74	33.10
2013	116	69	25.000	-112.958	301.988	9.4212	34.515	8.844	0.03	26.18	2.66	40.00
2013	116	69	25.000	-112.958	402.934	8.2808	34.493	4.851	0.02	26.79	2.89	49.71
2013	116	69	25.000	-112.958	503.045	7.3108	34.463	4.393	0.02	36.30	3.16	61.58
2013	116	69	25.000	-112.958	604.569	6.5003	34.472	3.787	0.02	38.35	3.28	70.77
2013	116	69	25.000	-112.958	806.583	5.0466	34.502	7.474	0.03	43.00	3.29	90.29
2013	116	69	25.000	-112.958	1011.395	4.3118	34.517	15.394	0.03	43.41	3.35	98.58
2013	116	70	26.000	-113.676	2.215	17.0157	33.678	236.834	0.03	0.00	0.48	3.43
2013	116	70	26.000	-113.676	24.769	16.2210	33.621	242.116	0.02	0.08	0.76	3.87
2013	116	70	26.000	-113.676	49.714	14.0229	33.530	221.909	0.19	4.75	1.93	5.56
2013	116	70	26.000	-113.676	100.345	11.4698	33.879	92.440	0.52	20.65	2.70	21.05
2013	116	70	26.000	-113.676	151.238	11.0399	34.410	32.615	0.10	25.76	2.72	32.51
2013	116	70	26.000	-113.676	201.167	10.7179	34.513	17.805	0.07	24.99	2.95	32.66
2013	116	70	26.000	-113.676	302.038	9.6100	34.520	8.537	0.02	29.75	3.26	43.25
2013	116	70	26.000	-113.676	403.475	8.0429	34.461	6.461	0.03	34.41	2.91	55.43
2013	116	70	26.000	-113.676	504.916	7.2475	34.444	5.232	0.02	30.48	3.07	55.25
2013	116	70	26.000	-113.676	608.512	6.2470	34.448	4.912	0.01	33.42	3.24	71.82
2013	116	70	26.000	-113.676	805.636	5.1904	34.476	8.168	0.01	40.97	3.38	86.97
2013	116	70	26.000	-113.676	1006.059	4.4134	34.501	15.167	0.05	42.85	0.43	103.60
2013	117	71	26.999	-114.508	3.977	15.8436	33.637	258.578	0.03	-0.01	1.04	1.11
2013	117	71	26.999	-114.508	34.979	14.4941	33.585	223.736	0.21	3.74	1.27	4.81
2013	117	71	26.999	-114.508	52.129	12.9951	33.584	180.441	0.27	10.06	2.01	10.28
2013	117	71	26.999	-114.508	99.898	10.8132	33.905	102.332	0.09	22.47	2.39	21.91
2013	117	71	26.999	-114.508	151.748	10.5828	34.268	55.244	0.04	26.94	2.62	30.58
2013	117	71	26.999	-114.508	201.432	10.4313	34.441	28.295	0.03	27.56	2.89	34.42
2013	117	71	26.999	-114.508	303.254	9.6312	34.506	10.548	0.01	29.94	2.82	41.95
2013	117	71	26.999	-114.508	403.037	8.4925	34.467	7.770	0.03	30.99	2.93	48.24
2013	117	71	26.999	-114.508	503.996	7.3917	34.440	5.886	0.03	35.80	2.93	60.59
2013	117	71	26.999	-114.508	604.817	6.2770	34.438	5.178	0.02	33.69	3.18	64.98

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	117	71	26.999	-114.508	807.512	5.0412	34.470	9.330	0.03	41.97	3.49	90.38
2013	117	71	26.999	-114.508	1013.085	4.2431	34.507	17.377	0.06	41.81	0.14	106.51
2013	117	72	28.031	-115.713	2.729	15.6892	33.592	252.287	0.02	0.07	0.43	0.83
2013	117	72	28.031	-115.713	50.891	12.3932	33.613	185.194	0.29	9.91	1.33	9.43
2013	117	72	28.031	-115.713	100.77	10.2027	33.956	92.200	0.03	24.72	2.18	25.96
2013	117	72	28.031	-115.713	152.878	10.5906	34.338	39.137	0.03	25.95	2.47	30.80
2013	117	72	28.031	-115.713	197.525	10.4039	34.378	33.846	0.02	26.94	2.58	32.96
2013	117	72	28.031	-115.713	303.837	9.3231	34.436	18.371	0.05	26.12	2.66	35.94
2013	117	72	28.031	-115.713	404.836	8.3478	34.430	11.172	0.02	33.06	2.96	51.27
2013	117	72	28.031	-115.713	506.835	7.4026	34.420	6.941	0.03	35.39	3.08	59.62
2013	117	72	28.031	-115.713	600.289	6.3454	34.415	6.170	0.03	39.42	3.25	73.77
2013	117	72	28.031	-115.713	807.458	5.0628	34.442	10.114	0.02	42.56	3.29	90.26
2013	117	72	28.031	-115.713	1007.274	4.1069	34.504	19.692	0.07	43.49	3.33	109.11
2013	118	73	30.964	-116.571	2.864	16.0630	33.597	248.929	0.04	0.19	0.39	3.00
2013	118	73	30.964	-116.571	25.517	11.9448	33.446	206.562	0.27	9.88	1.12	8.73
2013	118	73	30.964	-116.571	50.245	10.8755	33.504	123.254	0.26	17.36	1.49	16.37
2013	118	73	30.964	-116.571	101.522	9.5846	33.909	120.025	0.12	24.33	2.26	25.89
2013	118	73	30.964	-116.571	151.347	9.2455	34.074	95.149	0.05	27.53	2.16	31.73
2013	118	73	30.964	-116.571	201.697	8.7573	34.161	68.618	0.04	29.20	2.43	37.88
2013	118	73	30.964	-116.571	301.899	8.3596	34.322	27.965	0.01	31.95	2.73	47.57
2013	118	73	30.964	-116.571	403.062	7.4739	34.304	22.626	0.00	33.16	2.80	52.28
2013	118	73	30.964	-116.571	503.279	6.6039	34.329	13.581	0.04	38.48	2.91	68.04
2013	118	73	30.964	-116.571	604.391	5.9462	34.365	9.664	0.01	40.31	3.23	77.22
2013	118	73	30.964	-116.571	807.195	4.7830	34.440	12.632	0.03	42.05	3.22	93.99
2013	118	73	30.964	-116.571	1006.999	4.1144	34.487	20.385	0.01	42.41	3.39	106.69
2013	119	74	31.981	-117.135	2.615	16.5788	33.620	256.356	0.01	0.09	0.40	1.76
2013	119	74	31.981	-117.135	18.304	13.6628	33.532	260.288	0.11	4.09	0.85	4.10
2013	119	74	31.981	-117.135	51.26	10.9451	33.552	165.913	0.25	17.43	1.68	14.95
2013	119	74	31.981	-117.135	100.504	9.8944	33.902	94.553	0.06	24.01	2.16	24.26
2013	119	74	31.981	-117.135	151.595	9.4159	34.062	86.527	0.19	28.40	2.55	36.51
2013	119	74	31.981	-117.135	201.352	9.2823	34.231	50.809	0.08	30.95	2.49	38.84
2013	119	74	31.981	-117.135	302.254	8.0809	34.260	37.186	0.08	33.56	2.84	49.51

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	119	74	31.981	-117.135	404.948	7.4078	34.298	22.793	0.06	34.42	3.00	53.65
2013	119	74	31.981	-117.135	505.035	6.6218	34.319	14.644	0.03	38.96	3.09	67.37
2013	119	74	31.981	-117.135	604.33	6.0441	34.356	9.928	0.12	41.71	3.24	77.56
2013	119	74	31.981	-117.135	808.264	4.8730	34.432	11.709	0.10	44.17	3.49	97.87
2013	119	74	31.981	-117.135	1009.679	4.1916	34.481	19.352	0.01	43.10	3.26	106.91
2013	119	75	32.558	-117.449	1.743	17.1393	33.620	248.634	0.01	-0.04	0.46	1.40
2013	119	75	32.558	-117.449	24.684	12.9952	33.553	232.782	0.14	5.80	0.93	6.88
2013	119	75	32.558	-117.449	50.208	10.6075	33.575	159.063	0.06	18.81	1.60	15.49
2013	119	75	32.558	-117.449	100.799	9.8301	33.953	98.719	0.03	26.22	2.15	26.83
2013	119	75	32.558	-117.449	150.92	9.4236	34.142	64.351	0.13	29.27	2.38	33.11
2013	119	75	32.558	-117.449	200.972	9.1443	34.231	51.368	0.03	30.88	2.60	38.50
2013	119	75	32.558	-117.449	302.372	8.0920	34.281	32.645	0.01	34.16	2.82	49.68
2013	119	75	32.558	-117.449	403.76	7.3529	34.300	22.041	0.01	36.68	2.97	57.92
2013	119	75	32.558	-117.449	504.509	6.5795	34.321	14.117	0.01	38.19	3.05	66.00
2013	119	75	32.558	-117.449	603.206	5.9134	34.353	10.283	0.01	41.59	3.24	79.08
2013	119	75	32.558	-117.449	807.408	4.8456	34.431	11.974	0.02	44.09	3.22	96.73
2013	119	75	32.558	-117.449	1009.051	4.2419	34.475	18.523	0.01	44.10	3.29	108.48
2013	120	76	33.000	-117.985	1.732	16.5376	33.529	243.222	0.10	0.17	0.60	3.40
2013	120	76	33.000	-117.985	40.43	12.5574	33.402	233.369	0.17	5.79	1.07	6.52
2013	120	76	33.000	-117.985	100.07	10.0538	33.732	133.614	0.09	22.83	2.29	21.06
2013	120	76	33.000	-117.985	151.646	9.2253	33.996	101.297	0.04	27.47	2.19	29.04
2013	120	76	33.000	-117.985	201.763	8.6805	34.130	73.511	0.05	30.84	2.35	38.50
2013	120	76	33.000	-117.985	302.198	8.0028	34.254	36.451	0.04	34.93	2.76	49.59
2013	120	76	33.000	-117.985	402.023	7.1615	34.274	23.976	0.07	37.56	2.93	60.63
2013	120	76	33.000	-117.985	503.622	6.3811	34.315	13.941	0.05	40.23	3.24	71.28
2013	120	76	33.000	-117.985	604.813	5.6753	34.364	9.398	0.03	41.95	3.36	83.66
2013	120	76	33.000	-117.985	806.026	4.7177	34.436	11.630	0.03	43.60	3.33	102.40
2013	120	76	33.000	-117.985	806.516	4.7181	34.436	11.649	0.06	43.67	3.34	105.01
2013	120	76	33.000	-117.985	928.087	4.2794	34.472	14.610	0.05	43.78	3.39	114.39
2013	122	77	35.417	-121.627	1.985	12.9323	33.692	259.638	0.28	13.67	1.02	15.83
2013	122	77	35.417	-121.627	15.03	11.4672	33.694	258.023	0.28	14.81	1.34	15.67
2013	122	77	35.417	-121.627	50.657	9.8903	33.763	165.189	0.34	23.75	1.89	23.16

Year	Year-day	Cast	Latitude (deg.)	Longitude (deg.)	Pressure (dbar)	Temp-erature (°C)	Salinity	Oxygen (µm/kg)	Nit-rite, NO2 (µm/kg)	Nitrate, NO3 (µm/kg)	Phos-phate, PO4 (µm/kg)	Silicate, SiO4 (µm/kg)
2013	122	77	35.417	-121.627	100.823	9.0103	33.871	111.726	0.09	28.53	1.98	29.51
2013	122	77	35.417	-121.627	150.957	8.4501	34.013	93.563	0.10	27.82	2.26	33.72
2013	122	77	35.417	-121.627	202.563	8.2478	34.091	68.207	0.09	31.58	2.44	40.62
2013	122	77	35.417	-121.627	302.231	7.2166	34.170	38.451	0.04	36.86	2.86	54.95
2013	122	77	35.417	-121.627	405.092	6.7244	34.238	23.663	0.10	38.75	2.89	65.21
2013	122	77	35.417	-121.627	504.836	5.9948	34.296	13.787	0.03	40.74	3.11	81.77
2013	122	77	35.417	-121.627	607.337	5.5861	34.326	10.904	0.07	38.71	2.98	86.39
2013	122	77	35.417	-121.627	809.067	4.6487	34.411	11.804	0.09	41.12	3.13	112.88
2013	122	77	35.417	-121.627	1007.012	4.0495	34.460	17.986	0.07	43.01	3.24	117.53

Appendix 5. **Apéndice 5**

Table 5: *Typical command file for the lowered Acoustic Doppler Current Profiler (LADCP).* The meanings of the commands can be found in the RD Instruments manual (Teledyne RD Instruments, 2013). The commands read down the columns, left column first.

Tabla 5: *Archivo de comandos típicos para el Perfilador de Corrientes Acústico Doppler (LADCP).* El significado de los comandos puede encontrarse en el manual del RD Instruments (Teledyne RD Instruments, 2013). Los comandos se leen en las columnas hacia abajo, la columna de la izquierda es primero.

$l d:\ladcp\data\ladcp.log	$W62
$B	WN20
$W62	$W62
TT?	WS0800
$W62	$W62
CR1	WF0800
$$W62	$W62
WM15	WV330
$W62	$W62
RN PES40	EZ0011101
$W62	$W62
ED0000	EX00100
$W62	$W62
WB1	CF11101
$W62	$W62
TC2	CS
$W62	$D3
TB 00:00:02.00	$p
$W62	**********
TE 00:00:00.80	$p Please disconnect the ADCP from the computer.
$W62	$p
TP 00:00.00	**********
$W62	$D7
WP 1	$l
	$X

Appendix 6. **Apéndice 6**

Table 6: *Mean values of u and v as determined by the Acoustic Doppler Current Profilers (ADCP) for each CTD station occupied during the PESCAR24 cruise of April 2013.* Velocity profiles for each CTD station were determined by binning Ship-mounted ADCP (SADCP) and Lowered ADCP (LADCP) observed velocity components into 8 m bins and averaging. In the upper 50 m or so of the water column, LADCP velocity estimates indicated no vertical shear and were excluded from these averages.

Tabla 6: *Valores promedio de u y v determinados por el Perfilador de Corrientes Acústico Doppler (ADCP) para cada estación de CTD durante el crucero de PESCAR24 de abril de 2013.* Los perfiles de velocidad para cada estación de CTD se determinaron a través de los perfiladores montados en el barco, ADCP (SADCP) y con el ADCP (LADCP) "bajado" en la columna de agua. Las componentes de velocidad se obtuvieron en bloques de un promedio de 8 m. En los primeros 50 m superiores de la columna de agua, las estimaciones de velocidad del LADCP no indicaron el corte vertical de velocidad y fueron excluidas de estos promedios.

Station	1		2		3		4		5	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-1.40	-17.24	-14.49	-10.10	-23.91	0.99	-28.31	-12.89	-16.59	-31.71
20	7.14	-7.55	-7.77	-3.05	-21.42	5.23	-27.71	-10.41	-16.95	-26.14
30	16.65	0.46	4.76	3.93	-13.44	6.73	-23.06	-14.77	-11.68	-32.48
50	----	----	----	----	-12.37	14.69	-22.67	-9.72	-2.81	-52.00
75	----	----	----	----	-14.98	8.86	-18.97	-0.22	-2.25	-40.84
100	----	----	----	----	-14.56	3.96	----	----	-5.09	-30.93
125	----	----	----	----	-11.23	1.97	----	----	-6.99	-29.41
150	----	----	----	----	----	----	----	----	-7.30	-26.34
200	----	----	----	----	----	----	----	----	-6.03	-20.82
250	----	----	----	----	----	----	----	----	-9.59	-15.91
300	----	----	----	----	----	----	----	----	-2.15	-8.92
400	----	----	----	----	----	----	----	----	-4.19	-4.47
500	----	----	----	----	----	----	----	----	-8.84	-4.34
600	----	----	----	----	----	----	----	----	-9.05	-0.80

Station	6		7		8		9		10	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-2.76	-45.14	-13.35	-29.79	1.09	7.94	12.73	3.87	-4.75	1.73
20	10.25	-51.01	1.13	-31.80	8.12	7.47	9.25	1.01	-7.88	4.5
30	15.99	-56.06	8.63	-36.15	6.90	0.71	4.45	-2.18	-8.73	8.39
50	14.32	-58.10	12.78	-38.36	-2.51	-0.80	-0.82	4.02	-5.35	14.86
75	18.32	-60.08	15.20	-37.18	-0.93	-1.51	3.49	9.91	-8.77	15.59
100	17.03	-53.32	15.68	-32.50	9.03	3.21	2.98	3.74	-1.37	4.79
125	10.20	-41.05	8.48	-26.44	4.29	0.39	-0.24	1.42	-2.53	0.55
150	5.21	-27.54	0.40	-19.81	1.01	1.20	2.56	2.06	-1.08	0.62
200	4.74	-13.40	3.60	-12.08	0.51	-3.75	5.97	-0.35	2.41	2.66
250	7.42	-10.17	-4.96	-13.59	-3.79	-4.14	1.76	0.57	6.65	-0.61
300	7.75	-20.63	-2.46	-5.47	0.10	-0.18	4.09	-1.89	1.75	-3.09
400	-3.21	-12.8	5.80	-4.72	4.47	-3.71	2.72	-9.14	3.07	-0.39
500	1.28	-7.15	----	----	0.91	-1.35	0.78	1.14	2.67	2.97
600	2.19	-9.41	----	----	2.38	2.35	2.79	1.88	-1.51	5.18
700	9.33	-8.37	----	----	4.66	-0.07	5.51	-0.47	0.52	4.32
800	----	----	----	----	4.10	-2.98	4.10	-1.94	7.15	5.75
900	----	----	----	----	2.47	-9.61	2.66	-1.92	4.37	4.44
1000	----	----	----	----	----	----	-0.70	0.04	2.53	2.29
1100	----	----	----	----	----	----	-1.78	-1.58	1.17	3.61
1200	----	----	----	----	----	----	2.55	0.72	1.90	3.89
1300	----	----	----	----	----	----	0.81	1.47	0.27	3.74
1400	----	----	----	----	----	----	-1.50	0.36	1.62	2.03
1500	----	----	----	----	----	----	-2.35	-0.71	-0.08	3.91
1750	----	----	----	----	----	----	-9.79	-2.40	1.98	3.06
2000	----	----	----	----	----	----	----	----	0.94	2.50
2250	----	----	----	----	----	----	----	----	4.05	2.96
2500	----	----	----	----	----	----	----	----	1.28	3.31
2750	----	----	----	----	----	----	----	----	3.93	0.24

Station	11		12		13		14		15	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-4.11	3.36	-4.79	-14.51	-5.36	-8.63	-5.81	-6.86	-4.23	2.20
20	-4.60	5.12	-3.97	-12.02	-3.14	-5.23	-2.15	-6.07	-1.72	-1.02
30	-0.69	9.75	1.39	-10.84	0.17	-5.37	7.64	-6.23	-0.45	-7.79
50	7.01	0.56	-0.63	-7.60	2.01	-7.12	6.85	-9.41	-1.94	-5.00
75	-0.84	4.97	-2.41	3.25	3.13	-4.49	11.18	-2.85	8.90	-0.94
100	-6.20	-1.61	-6.67	1.59	-0.69	-3.64	-2.57	-1.82	6.63	-1.76
125	-5.45	1.09	-3.22	-0.52	-0.74	-2.13	-0.23	2.59	-0.27	0.81
150	-1.19	-1.63	1.05	-0.93	0.06	-4.76	-3.35	-2.09	-8.59	-2.76
200	5.39	-0.13	-1.01	-2.78	-0.15	1.18	2.39	2.18	-1.05	8.78
250	4.73	-0.21	-0.55	-1.60	0.05	-5.02	1.98	2.13	-1.21	2.10
300	7.13	-1.56	1.74	-3.23	-4.29	-1.99	-2.07	0.77	-2.95	2.54
400	1.33	-0.58	1.93	0.74	-4.30	-3.12	-6.50	1.24	-3.39	5.20
500	3.66	-4.32	0.66	-1.23	3.14	-0.77	1.21	2.63	-1.94	4.56
600	-0.37	0.16	-2.90	-2.29	-0.04	1.61	2.78	2.33	2.37	-0.02
700	2.38	-1.81	2.86	-4.75	-0.25	-0.33	-4.52	1.62	-6.62	4.51
800	3.44	-1.56	-6.50	-2.50	-3.16	1.87	-1.57	4.08	-2.35	7.08
900	2.68	2.17	-2.55	1.24	-3.26	3.86	-1.45	4.64	-1.64	2.16
1000	2.42	-1.11	0.61	3.45	0.01	3.27	2.57	0.30	-1.20	1.37
1100	-0.62	-3.27	0.44	1.44	0.13	-1.34	----	0.58	1.39	1.25
1200	-0.02	-4.15	0.58	0.71	-0.46	-1.29	-4.34	0.57	-3.17	-0.30
1300	2.30	0.24	2.64	-0.63	-0.13	2.33	-4.47	1.08	-3.60	5.13
1400	2.43	-4.82	3.78	-1.12	2.40	-1.27	-1.47	-0.19	1.48	2.14
1500	3.64	-3.17	2.57	0.95	4.19	-3.86	-0.42	0.83	-3.23	-0.12
1750	4.73	-1.10	----	----	----	----	-0.33	2.68	-2.66	2.50
2000	1.57	-1.41	----	----	----	----	-0.27	1.76	0.04	0.15
2250	4.20	1.22	----	----	----	----	3.36	0.40	----	----
2500	5.06	0.79	----	----	----	----	----	----	----	----

Station	16		17		18		19		20	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-1.43	7.20	5.90	2.07	-3.36	7.77	-2.89	17.19	2.01	40.45
20	-0.62	4.06	5.26	4.33	0.29	9.70	-0.34	21.08	4.62	42.62
30	-1.98	-0.15	7.06	10.21	5.71	12.15	4.94	24.87	8.44	41.89
50	1.55	7.69	14.14	19.11	16.91	20.76	9.98	33.46	5.73	17.85
75	6.84	6.63	12.94	16.11	10.70	22.19	9.56	25.47	-0.17	9.36
100	9.86	7.57	6.95	4.79	1.94	10.49	-1.88	13.60	1.05	4.00
125	5.89	-1.76	-5.73	2.70	-1.05	6.95	2.36	13.48	-0.36	0.12
150	-0.94	-1.13	-9.93	6.14	3.91	3.19	6.63	11.46	0.75	-0.20
200	1.56	5.54	-0.61	1.60	4.25	7.66	16.06	3.78	-0.82	0.49
250	0.76	3.96	-6.52	5.19	0.44	4.73	9.56	5.01	-5.33	-3.77
300	-1.56	3.38	-5.10	6.84	-4.74	5.74	-5.60	6.33	----	----
400	-3.95	4.81	-5.44	4.99	-8.23	6.68	-3.77	6.16	----	----
500	-1.81	8.90	-4.85	4.54	-3.92	4.29	-5.05	3.93	----	----
600	4.82	4.35	-4.75	6.63	-7.86	8.47	-3.17	5.83	----	----
700	1.32	3.82	-5.75	3.47	-0.55	6.54	-0.43	-0.37	----	----
800	3.19	6.22	-3.05	2.20	0.64	5.99	3.87	0.18	----	----
900	5.50	4.74	-0.15	2.15	-6.96	2.42	3.87	-6.05	----	----
1000	3.57	3.94	-2.65	10.38	-4.63	6.58	-1.61	-5.31	----	----
1100	3.98	3.85	-5.14	6.43	-0.69	5.72	3.70	3.18	----	----
1200	4.20	-0.34	-6.59	6.73	1.75	5.32	-1.63	2.25	----	----
1300	1.96	1.79	-6.71	7.09	-0.21	5.93	-2.40	-2.12	----	----
1400	7.01	-1.19	-5.42	6.16	0.61	5.69	-0.51	1.82	----	----
1500	2.78	-2.55	-1.22	9.84	2.30	5.85	----	----	----	----
1750	2.20	-0.74	1.04	4.19	4.34	-2.67	----	----	----	----
2000	3.11	-0.60	-2.10	8.61	----	----	----	----	----	----
2250	2.49	3.61	1.68	0.50	----	----	----	----	----	----
2500	5.07	3.43	----	----	----	----	----	----	----	----

Station	21		22		23		24		25	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	14.06	8.44	14.32	14.76	7.34	10.51	8.34	14.14	4.79	2.42
20	4.60	-8.48	13.42	8.41	4 80	0.26	7.99	11.65	3.99	4.45
30	2.84	-10.54	7.74	2.52	1.54	2.90	1.58	3.30	-0.02	6.50
50	2.15	-4.47	4.77	-7.24	-6.45	-1.52	-10.82	0.89	-7.16	10.23
75	0.47	-5.99	5.57	-2.79	-4.77	-0.94	-0.53	0.85	-0.78	0.71
100	-1.01	-0.49	5.86	-3.51	-0.71	-4.01	-4.10	1.65	-2.26	6.65
125	-2.66	-1.29	2.17	-4.72	-3.59	-0.43	-3.59	1.80	-3.25	9.61
150	-1.34	-1.21	1.50	-6.31	-3.65	3.27	-0.60	1.62	-3.93	11.37
200	----	----	0.07	-2.02	-0.16	5.41	-0.28	8.13	-5.12	16.05
250	----	----	0.66	-5.01	-2.14	3.23	-4.22	7.33	-4.65	13.38
300	----	----	5.01	-7.29	-2.24	4.12	-1.14	5.39	-3.96	12.31
400	----	----	0.74	-2.55	-2.85	3.94	-3.73	10.30	-1.27	10.29
500	----	----	-0.74	-6.40	-5.14	7.05	-7.59	8.20	-0.82	5.93
600	----	----	2.61	-5.18	-1.95	9.19	-5.62	9.14	-0.44	10.12
700	----	----	0.71	0.45	-1.05	-0.97	-4.75	8.25	-0.55	8.65
800	----	----	-1.37	-1.53	-7.24	-1.32	-4.08	9.18	0.33	7.67
900	----	----	-1.23	3.29	-1.84	-6.90	-6.87	9.12	0.38	4.38
1000	----	----	0.80	-1.03	-0.02	0.58	-6.74	6.84	-3.04	6.89
1100	----	----	-2.94	-3.04	1.84	0.46	-3.34	3.25	-0.94	5.42

Station	26		27		28		29		30	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-6.18	0.95	-2.01	7.05	-4.19	0.45	-10.49	2.57	-9.84	12.16
20	-5.24	0.59	-1.82	6.93	-4.36	0.37	-10.51	4.82	-11.48	12.50
30	-3.29	0.98	-0.07	5.77	-8.97	-4.85	-9.57	4.73	-11.47	11.03
50	0.65	2.89	2.56	7.18	-13.70	-4.38	-7.35	13.83	-7.02	12.70
75	2.80	6.10	0.73	6.82	-8.19	-3.59	-4.58	17.47	-3.36	12.29
100	-2.37	5.55	0.70	8.30	-4.73	-4.50	-2.78	7.42	1.98	6.03
125	-3.40	13.13	0.79	-2.61	-3.80	0.29	-6.91	2.95	-5.44	-0.02
150	-5.53	16.25	-5.22	3.98	-6.30	5.09	-9.13	5.33	-5.03	0.75
200	-6.53	23.21	1.80	2.11	-1.02	4.07	-2.75	1.23	-8.49	1.00
250	-6.33	24.29	0.62	-1.00	-1.27	-0.83	-5.81	4.32	-1.21	1.44
300	-6.82	23.38	-0.62	-0.85	-5.01	-5.91	-5.83	7.87	-6.53	4.58
400	-3.05	12.56	-2.79	-0.37	-4.91	1.89	-6.90	11.15	-4.93	0.98
500	0.73	9.45	1.46	0.73	-4.83	5.62	-3.22	8.35	-3.90	9.84
600	0.47	3.93	----	----	-2.90	5.55	1.64	3.34	-3.60	4.17
700	-2.36	1.72	----	----	0.60	4.81	-2.18	3.69	3.25	2.49
800	3.27	9.10	----	----	0.80	6.14	2.13	2.07	-0.95	3.80
900	-0.84	5.24	----	----	1.89	5.61	0.32	-2.50	2.56	0.11
1000	-3.34	4.03	----	----	2.99	3.80	0.04	0.75	2.89	1.39
1100	-2.54	1.95	----	----	1.62	2.94	-0.57	-3.37	-2.37	1.26

Station	31		32		33		34		35	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-5.97	14.99	-14.29	16.68	-4.38	-5.83	-12.47	0.61	-10.83	-7.60
20	-4.28	19.62	-7.52	13.34	-7.20	-2.78	-10.26	0.90	-9.27	-8.50
30	-5.81	18.56	1.67	10.74	-6.71	-5.22	-11.03	3.36	-8.65	-11.07
50	-10.51	10.49	14.98	12.22	-1.92	-6.90	-13.19	-4.58	-13.98	-10.32
75	6.20	6.80	-1.52	-1.84	2.58	-6.08	1.29	-2.53	-11.84	3.40
100	1.12	2.01	-4.16	7.15	-2.56	-6.89	1.30	-0.10	-1.08	1.55
125	-8.50	5.61	0.86	1.59	-3.15	-4.68	0.62	-7.46	-4.59	-13.55
150	-9.94	8.46	0.57	-2.68	-5.69	-2.16	----	----	-9.27	-16.32
200	0.11	5.81	-4.13	-7.88	-7.38	2.59	----	----	-3.08	-8.60
250	-0.36	-1.51	-4.27	-7.72	-1.71	1.15	----	----	-1.44	-9.31
300	-3.32	0.40	-1.24	-4.95	1.08	-2.61	----	----	-2.56	-7.88
400	-3.69	5.82	2.16	-3.42	----	----	----	----	-2.65	-8.91
500	-4.82	4.56	-2.29	-0.30	----	----	----	----	----	----
600	-0.55	0.63	-0.85	-0.22	----	----	----	----	----	----
700	-2.95	-1.35	-2.21	-1.25	----	----	----	----	----	----
800	-2.54	-2.36	1.82	-3.80	----	----	----	----	----	----
900	0.38	-5.72	1.05	-1.38	----	----	----	----	----	----
1000	1.68	-2.77	4.22	-2.70	----	----	----	----	----	----
1100	-0.64	-0.35	0.86	-1.94	----	----	----	----	----	----

Station	36		37		38		39		40	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-26.34	-20.26	-5.37	-14.06	13.12	21.22	54.15	32.75	47.28	-28.44
20	-22.47	-18.07	-5.85	-9.05	15.01	17.76	45.45	28.03	42.93	-25.06
30	-15.96	-14.08	-5.92	-3.13	16.30	14.72	37.10	28.20	38.99	-19.46
50	-7.02	-11.84	-3.25	-5.65	16.65	9.90	30.30	20.53	33.88	-7.98
75	-11.31	-4.80	-2.03	-2.07	8.39	3.19	18.23	11.52	15.17	-9.19
100	-7.17	-7.06	-0.05	-4.09	8.16	-0.04	9.38	5.06	14.83	-8.27
125	6.48	-4.30	0.21	0.62	-0.58	0.96	10.63	-1.52	11.49	-9.73
150	8.78	-0.55	9.81	6.34	3.85	6.92	9.66	-1.19	9.20	-7.43
200	0.41	-3.88	9.05	0.93	8.79	4.76	6.95	3.14	9.49	-5.52
250	-5.93	-3.91	-1.46	-0.71	5.02	0.89	4.31	4.15	11.73	-4.12
300	-5.12	-4.40	0.03	2.74	4.60	5.61	4.01	-2.37	10.92	-4.36
400	-4.75	-3.42	3.43	2.15	7.30	6.73	5.44	5.25	8.60	-3.16
500	-3.86	-1.40	-0.89	4.16	0.56	3.50	1.23	-4.74	6.45	-2.25
600	-5.78	1.93	0.03	2.12	-0.09	1.59	0.18	4.40	4.46	-5.21
700	3.59	-5.51	1.97	0.90	4.98	-4.32	2.24	3.47	8.21	-2.12
800	-0.13	-7.59	0.56	-0.06	1.10	0.26	1.33	4.15	2 10	0.91
900	1.88	-0.04	-0.24	2.53	1.21	1.35	2.10	1.66	1.60	-1.22
1000	-0.58	1.44	0.84	3.78	0.04	-0.26	0.26	1.47	9.07	-1.18
1100	1.71	4.03	-4.56	-0.25	-2.02	0.90	-1.17	3.98	5.69	2.51

Station	41		42		43		44		45	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	46.75	-31.62	26.64	-34.33	21.32	-19.23	17.60	2.59	-3.02	13.13
20	41.42	-26.65	29.63	-22.84	28.69	-13.19	21.85	6.40	13.38	13.50
30	34.30	-21.44	26.48	-16.12	26.70	-6.80	18.71	8.14	18.21	11.56
50	27.39	-18.47	21.28	-4.87	24.75	1.90	19.50	2.28	7.09	1.00
75	14.47	-11.71	20.00	-0.18	21.24	-0.55	17.52	0.02	9.81	5.52
100	11.23	-10.64	9.82	-4.49	12.81	2.91	7.92	4.25	7.43	8.43
125	5.44	-4.87	8.18	1.94	7.94	3.29	4.96	4.52	6.37	5.98
150	4.20	-0.01	9.60	0.46	1.47	6.56	1.47	5.19	1.29	2.51
200	7.32	-4.84	2.86	-2.65	2.40	3.65	-0.43	6.05	-2.33	11.07
250	3.48	-1.04	1.59	-1.64	3.94	1.95	0.94	4.94	1.83	5.34
300	5.54	-2.70	2.53	-0.50	4.27	1.24	-2.57	7.92	7.13	7.98
400	5.20	-2.66	4.38	5.92	9.10	5.39	5.94	6.55	12.86	5.85
500	9.37	0.61	5.41	-4.68	10.75	3.87	10.10	0.94	12.94	-1.83
600	5.90	-3.47	2.84	-3.58	4.13	0.86	9.05	10.71	2.81	-17.42
700	5.82	-2.53	1.50	-4.33	5.35	1.43	7.85	6.05	----	----
800	6.46	1.04	6.83	-0.83	8.57	2.11	1.88	3.76	----	----
900	1.96	7.80	4.94	2.18	4.07	-0.09	-3.57	-5.74	----	----
1000	0.35	1.81	9.22	1.24	3.57	0.53	----	----	----	----
1100	1.82	-1.74	10.97	4.75	1.69	2.22	----	----	----	----

Station	46		47		48		49		50	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	4.27	9.28	29.95	-16.22	30.99	0.76	31.78	-2.93	13.34	2.46
20	6.26	9.77	34.04	-4.63	38.36	9.10	28.67	3.82	12.23	6.71
30	8.78	12.06	36.32	1.20	40.65	8.95	30.77	8.51	11.87	12.98
50	10.17	7.43	25.15	-1.50	30.32	8.01	34.02	5.25	12.91	11.89
75	4.14	6.37	22.58	-5.97	13.79	-3.13	18.19	1.72	16.91	4.43
100	5.84	-1.38	7.81	-4.47	6.74	-4.33	5.17	-2.45	10.95	4.51
125	2.63	-3.92	0.27	1.36	5.75	-2.44	0.52	-1.30	2.46	2.97
150	0.36	-0.65	-2.91	2.60	8.51	-1.92	-0.90	0.11	0.25	8.17
200	1.80	1.68	-5.20	2.42	5.58	-3.52	-6.77	2.06	1.76	4.78
250	----	----	0.17	1.14	4.13	-1.45	-4.53	-0.48	-0.75	-0.07
300	----	----	8.87	3.56	-2.97	4.37	-1.97	1.81	1.68	0.09
400	----	----	14.28	0.41	-0.75	-3.41	0.66	3.93	2.80	8.80
500	----	----	3.53	0.53	0.98	-0.43	0.26	4.19	0.28	1.43
600	----	----	-5.09	-4.36	4.99	-3.17	-0.60	2.01	-1.08	1.41
700	----	----	-1.59	-5.86	2.88	-0.15	2.47	2.85	5.09	5.98
800	----	----	-1.67	-1.87	1.37	0.76	4.19	2.33	2.37	4.06
900	----	----	3.03	-7.02	-1.04	4.84	2.03	5.18	-0.32	2.69
1000	----	----	2.00	-7.24	4.08	6.38	1.22	5.22	5.54	2.14
1100	----	----	-0.17	-4.70	2.73	-0.53	0.48	0.10	1.44	2.15

Station	51		52		53		54		55	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	9.62	1.30	-3.00	9.05	-11.59	19.23	-20.25	-9.84	-3.03	-8.27
20	10.63	4.11	-2.47	14.28	-10.70	19.38	-20.02	-9.99	-4.44	-8.35
30	12.31	9.09	3.19	20.54	-5.64	20.34	-20.55	-8.02	-3.60	-9.24
50	16.56	13.79	13.40	17.08	-0.70	19.08	-19.68	-9.47	-3.88	-17.39
75	12.67	8.74	15.46	9.59	8.01	5.85	-17.79	-8.77	-14.66	-5.11
100	4.54	6.52	4.62	6.21	1.28	4.01	-13.60	3.65	-16.18	4.34
125	2.37	9.05	0.87	8.36	-1.27	1.97	-9.79	6.38	-13.82	10.84
150	0.89	5.73	4.96	7.92	0.78	7.97	-8.97	6.57	-9.72	8.84
200	5.67	5.40	3.20	9.02	-4.24	11.06	-9.52	-0.21	-9.43	9.12
250	3.28	5.03	6.18	10.88	4.76	17.94	-6.44	6.61	-10.21	10.35
300	0.65	7.13	2.75	13.43	4.61	17.20	-4.81	9.23	-8.50	10.09
400	2.39	-0.45	4.38	9.67	4.06	11.23	-6.95	10.60	-6.52	8.24
500	-1.37	3.93	7.60	8.24	4.29	7.84	-7.04	10.36	-5.54	6.44
600	3.93	6.36	6.93	10.52	2.64	10.58	-3.27	10.68	-4.54	6.76
700	7.08	3.47	7.61	15.41	5.76	16.07	-1.48	10.19	-7.02	10.42
800	4.41	8.75	8.97	12.37	5.60	17.48	-0.71	8.48	-3.43	6.09
900	6.10	3.76	6.20	4.61	1.76	12.44	2.34	4.99	-3.72	8.43
1000	2.82	6.59	3.25	5.88	3.30	9.02	0.40	2.34	-2.70	5.15
1100	2.46	2.99	-2.08	7.66	2.47	4.64	0.12	2.93	-5.95	7.20

Station	56		57		58		59		60	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	-0.27	-6.73	3.84	-16.65	-6.29	-12.81	16.24	-16.62	20.08	-19.85
20	0.45	-5.17	4.87	-15.30	-7.20	-13.77	14.62	-9.80	20.77	-17.02
30	0.03	-3.95	6.73	-11.24	-6.97	-13.52	12.48	-2.59	20.03	-12.98
50	-5.16	-13.66	-4.32	-12.91	-3.10	-12.78	18.33	-7.27	15.65	-5.24
75	-12.31	-0.01	-14.06	-3.80	-8.64	-17.34	14.37	-9.64	14.18	-3.74
100	-14.58	3.06	-15.61	-9.72	-5.72	-9.63	16.47	-7.55	17.55	-5.15
125	-12.83	3.90	-19.82	-4.83	-4.84	-5.49	19.70	-6.24	18.48	-8.36
150	-12.17	0.15	-22.54	-0.87	-4.71	-3.21	22.67	-3.40	17.05	-5.20
200	-14.43	6.21	-14.94	2.03	2.44	-2.54	20.38	-3.80	19.84	-8.92
250	-11.82	7.52	-10.02	5.86	2.28	-2.62	16.51	-10.82	10.80	-3.96
300	-8.25	8.21	-6.55	4.97	1.58	-2.45	8.31	-12.40	5.77	-5.14
400	-4.18	6.70	-1.29	8.28	-1.43	-1.54	5.45	-2.38	-3.39	-6.69
500	-3.77	10.80	-2.75	3.26	3.09	0.53	10.93	-4.11	-1.59	-3.54
600	-7.49	8.22	2.75	6.15	6.15	1.07	4.45	-5.88	-0.07	5.84
700	-7.49	11.10	0.94	10.00	3.45	-1.42	1.14	-1.20	----	----
800	-7.41	13.33	-0.10	6.38	1.04	0.01	6.43	-1.63	----	----
900	-9.07	10.07	-1.92	3.94	2.67	-0.23	7.09	-1.77	----	----
1000	-5.89	5.91	-2.80	0.70	4.11	0.94	4.74	1.16	----	----
1100	-3.39	6.21	-2.39	1.51	2.24	3.53	11.51	-0.14	----	----

Station	61		62		63		64		65	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	13.72	-12.82	0.24	-24.58	-5.13	-19.69	19.21	-15.42	8.62	-8.28
20	13.33	-15.15	-1.47	-22.81	0.98	-16.63	21.59	-5.28	9.39	-0.21
30	11.93	-14.39	-3.28	-21.52	-1.05	-10.97	21.31	-0.08	15.21	7.55
50	-1.40	-12.91	2.31	-14.60	4.73	-11.84	14.02	3.82	19.37	2.63
75	7.12	-6.93	8.16	-10.75	5.58	-6.22	12.99	3.28	13.38	-1.78
100	12.89	-13.68	-2.19	-7.78	3.71	3.91	13.36	2.18	14.30	-3.36
125	14.06	-3.16	-0.36	3.21	7.80	5.09	5.77	7.19	7.41	-0.84
150	18.20	-3.14	8.46	6.63	10.47	4.06	11.68	7.84	5.83	-0.47
200	13.26	4.17	16.68	1.86	2.08	0.56	13.04	5.36	4.36	-0.68
250	11.07	5.69	12.41	9.11	-0.37	4.32	12.59	3.11	7.28	-0.75
300	8.97	6.55	11.11	10.45	0.46	11.84	9.61	1.19	5.45	-2.36
400	4.46	4.61	12.79	11.54	1.74	-3.41	-0.69	-2.60	2.20	-0.84
500	-0.81	0.91	----	----	0.39	-1.75	-0.08	0.80	0.41	-10.08
600	4.93	-2.26	----	----	3.44	-3.97	-0.42	5.96	1.17	-3.40
700	----	----	----	----	-0.55	-6.04	5.30	-3.23	-2.8-	-1.73
800	----	----	----	----	-9.68	3.13	7.16	5.74	-4.33	-1.23
900	----	----	----	----	----	----	2.27	11.93	-2.13	-2.82
1000	----	----	----	----	----	----	-1.46	10.09	0.47	1.11

Station	66		67		68		69		70	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	10.63	-12.57	28.51	-8.34	12.50	-42.02	12.07	12.77	0.81	-37.75
20	13.62	-7.55	27.36	-7.79	12.84	-35.97	13.48	13.09	3.94	-30.89
30	15.51	-4.62	20.62	-7.07	15.53	-31.70	15.16	5.88	6.67	-23.93
50	17.93	-8.34	7.84	0.02	12.22	-18.21	10.27	-3.88	5.38	-11.92
75	16.88	-6.59	9.63	-7.32	8.25	-13.64	1.76	5.00	-2.72	-9.49
100	13.72	-9.99	12.16	-10.96	3.08	-1.20	3.05	-1.16	1.91	-6.06
125	11.35	-5.11	10.51	-12.15	6.37	2.56	0.82	-4.91	4.99	-6.56
150	10.74	-0.97	9.00	-10.02	0.48	-0.67	-0.57	7.00	3.04	0.63
200	13.36	-3.28	10.93	-12.12	-7.47	0.55	1.66	7.79	-0.13	-2.17
250	14.24	-5.58	6.64	-8.13	-7.99	4.86	1.81	-0.90	-3.50	3.42
300	11.35	-4.23	10.78	-7.67	-6.54	5.61	-9.16	-4.26	-1.64	7.63
400	6.81	-0.65	6.48	-10.44	-2.50	-0.13	-1.22	0.66	-2.32	-8.11
500	10.80	-7.21	9.41	-7.21	-0.20	4.52	4.01	-2.66	-0.03	-9.57
600	8.56	3.20	10.01	-13.91	2.15	0.59	-2.18	-10.36	6.66	0.48
700	9.00	-0.67	10.33	-18.95	5.51	-7.34	1.30	-11.26	9.82	3.49
800	8.21	0.14	9.99	-12.54	-0.70	-3.99	7.18	-12.34	4.88	-7.64
900	9.19	-6.64	13.47	-10.90	4.44	-5.57	1.76	-14.95	8.30	-1.33
1000	6.99	-4.78	12.32	-10.28	8.69	-5.13	-0.57	-2.66	6.12	2.27
1100	1.96	4.55	16.51	-8.17	6.40	-6.70	-0.30	-6.12	8.34	2.08

Station	71		72		73		74		75	
Depth (m)	u	v	u	v	u	v	u	v	u	v
10	25.68	-41.06	-47.45	-20.79	12.81	6.44	0.97	-12.85	12.72	4.07
20	24.74	-31.00	-35.11	-17.88	9.39	13.66	3.83	-13.55	11.69	-1.62
30	22.03	-21.63	-25.99	-18.13	7.79	17.27	0.42	-10.94	8.70	0.49
50	17.25	-7.79	-13.61	-16.67	5.12	12.78	0.73	12.16	4.28	-3.72
75	0.58	-5.58	-12.21	-20.03	-14.57	16.23	12.75	12.81	-0.87	-6.43
100	-9.11	0.04	-11.00	-18.35	-11.02	23.10	5.50	-3.64	-3.62	1.21
125	-1.90	7.37	-8.73	-14.80	-7.89	26.77	3.61	-13.39	-4.85	4.51
150	-3.16	7.33	-10.54	-21.66	-6.76	21.37	-0.79	-14.37	-6.37	5.96
200	-3.79	4.97	-3.50	-21.22	-5.70	19.98	-8.60	-16.06	-7.38	4.97
250	-0.32	7.11	2.83	-16.76	-4.16	28.18	-11.20	-15.72	-9.60	5.92
300	-1.35	6.79	5.58	-10.68	-1.71	19.19	-10.86	-8.95	-5.85	8.87
400	-1.90	8.05	1.58	-5.87	-2.01	11.68	-13.27	4.85	-1.24	9.53
500	0.74	7.15	-2.17	-4.66	-3.87	0.94	2.02	-0.46	-0.49	6.29
600	-7.27	6.34	0.85	-4.51	-0.13	-9.65	-1.18	2.42	-3.51	5.02
700	-4.55	0.26	3.68	-6.56	----	----	----	----	----	----
800	0.26	-2.96	6.18	-7.83	----	----	----	----	----	----
900	-1.37	-2.25	1.68	-2.34	----	----	----	----	----	----
1000	8.72	-4.21	1.66	0.57	----	----	----	----	----	----
1100	----	----	4.45	1.91	----	----	----	----	----	----

Appendix 7. **Apéndice 7**

Table 7: *Expendable bathythermograph (XBT) temperatures (^{o}C) from selected standard depths.*

Tabla 7: *Temperaturas (^{o}C) del batitermógrafo desechable (XBT) a las profundidades estándar.*

XBT	42	43	44	45	46
YearDay	115.512	115.664	115.997	116.110	116.393
Latitude (N)	23.339	23.666	24.333	24.671	25.332
Longitude (W)	111.415	111.871	112.538	112.752	113.197
Depth (m)					
1	18.92	17.13	18.60	17.62	17.48
10	18.45	17.08	18.57	17.58	17.44
20	16.77	16.74	18.12	17.52	17.44
30	16.22	15.50	17.12	17.13	17.44
50	14.19	14.03	15.93	14.37	15.92
75	13.08	13.25	14.38	13.07	12.98
100	12.59	12.36	12.75	11.63	11.78
125	11.64	12.13	11.61	11.23	11.40
150	11.73	11.72	11.22	11.14	10.80
200	10.98	10.91	11.18	11.40	10.75
250	10.33	10.26	10.65	10.28	10.37
300	09.82	09.75	09.75	09.46	10.07
400	08.81	----	08.25	08.49	08.60
500	08.09	----	07.77	07.28	07.34
600	----	----	06.90	06.49	06.43
700	----	----	05.88	----	05.76
760	----	----	05.55	----	05.38

XBT	48	49	55	56	57
YearDay	116.809	116.938	117.793	117.917	118.021
Latitude (N)	26.334	26.667	28.344	28.714	29.008
Longitude (W)	113.953	114.231	115.696	115.621	115.688
Depth (m)					
1	18.92	17.13	18.60	17.62	17.48
10	18.45	17.08	18.57	17.58	17.44
20	16.77	16.74	18.12	17.52	17.44
30	16.22	15.50	17.12	17.13	17.44
50	14.19	14.03	15.93	14.37	15.92
75	13.08	13.25	14.38	13.07	12.98
100	12.59	12.36	12.75	11.63	11.78
125	11.64	12.13	11.61	11.23	11.40
150	11.73	11.72	11.22	11.14	10.80
200	10.98	10.91	11.18	11.40	10.75
250	10.33	10.26	10.65	10.28	10.37
300	09.82	09.75	09.75	09.46	10.07
400	08.81	----	08.25	08.49	08.60
500	08.09	----	07.77	07.28	07.34
600	----	----	06.90	06.49	06.43
700	----	----	05.88	----	05.76
760	----	----	05.55	----	05.38

XBT	59	63	69	70	71
YearDay	118.161	118.305	118.740	118.961	118.847
Latitude (N)	29.337	29.686	30.726	31.247	31.671
Longitude (W)	115.746	115.848	116.357	116.709	116.909
Depth (m)					
1	18.92	17.13	18.60	17.62	17.48
10	18.45	17.08	18.57	17.58	17.44
20	16.77	16.74	18.12	17.52	17.44
30	16.22	15.50	17.12	17.13	17.44
50	14.19	14.03	15.93	14.37	15.92
75	13.08	13.25	14.38	13.07	12.98
100	12.59	12.36	12.75	11.63	11.78
125	11.64	12.13	11.61	11.23	11.40
150	11.73	11.72	11.22	11.14	10.80
200	10.98	10.91	11.18	11.40	10.75
250	10.33	10.26	10.65	10.28	10.37
300	09.82	09.75	09.75	09.46	10.07
400	08.81	----	08.25	08.49	08.60
500	08.09	----	07.77	07.28	07.34
600	----	----	06.90	06.49	06.43
700	----	----	05.88	----	05.76
760	----	----	05.55	----	05.38

Appendix 8. **Apéndice 8**

Table 8: *Meteorological and sea surface data collected during the PESCAR24 cruise of April 2013.* Listed here are the meteorological and surface oceanographic conditions as measured by the *u*nderway *d*ata *a*cquisition *s*ystem (UDAS) of the *R/V Point Sur* at the beginning of each hydrographic station. Continuous measurements of the water being pumped through the ship's uncontaminated seawater system ("sea chest") from approximately 3 meters below the surface supplied the oceanographic data, while instrumentation atop the ship's mast supplied the meteorological data.

Tabla 8: *Datos meteorológicos y datos superficiales colectados durante el crucero PESCAR24 de abril de 2013.* Se listan las condiciones oceanográficas meteorológicas y superficiales según lo medido por el Sistema de Adquisición de Datos en Curso (UDAS) del *R/V Point Sur* al principio de cada estación hidrográfica. Las mediciones continuas del agua se bombearon a través del sistema de agua de mar no contaminada de la nave ("sea chest"), la cual fue suministrada aproximadamente 3 metros bajo la superficie para abastecer los datos oceanográficos. La instrumentación en lo alto del mástil del buque abasteció los datos meteorológicos.

CTD Station	Yearday, 2013 (UTC)	Barometric Pressure (mb)	Relative Humidity (%)	Solar Radiation (W/m^2)	Air Temp. (^oC)	SST (^oC)	SSS
0	109.0056	1007.95	78.68	067.00	22.41	24.057	34.592
1	109.5170	1008.90	67.09	0.77	21.36	22.449	34.788
2	109.5715	1009.94	75.00	139.51	20.93	22.289	34.766
3	109.6274	1010.47	75.76	409.04	20.87	22.495	34.893
4	109.6813	1010.87	76.14	634.76	20.98	22.516	34.905
5	109.7441	1010.67	75.05	843.25	21.16	22.504	34.848
6	109.8119	1009.60	74.15	917.82	21.35	22.605	34.935
7	109.8946	1008.54	76.96	780.25	21.49	21.788	34.605
8	110.0002	1007.40	76.37	322.75	21.56	22.515	34.963
9	110.1337	1008.48	68.30	1.14	21.67	22.219	35.058
10	110.2448	1009.11	67.79	9.68	21.74	22.017	34.933
11	110.3674	1008.48	67.16	1.97	21.73	22.135	34.966
12	110.6974	1012.16	63.54	644.50	21.64	22.393	35.083
13	110.7939	1012.46	63.97	947.21	22.17	22.164	34.634

CTD Station	Yearday, 2013 (UTC)	Barometric Pressure (mb)	Relative Humidity (%)	Solar Radiation (W/m^2)	Air Temp. (^oC)	SST (^oC)	SSS
14	110.8811	1011.45	53.36	783.45	22.77	21.865	34.386
15	110.9904	1010.56	50.24	355.28	23.85	21.906	34.339
16	111.0873	1011.26	61.86	5.47	22.24	22.234	34.352
17	111.5280	1013.36	81.55	1.43	20.69	21.797	34.630
18	111.6387	1014.69	79.30	481.53	20.84	22.024	34.679
19	111.7447	1014.77	79.70	877.84	20.92	22.187	34.641
20	111.8230	1013.15	81.36	939.15	21.07	22.513	34.623
21	111.9759	1010.92	76.50	419.39	22.06	23.563	34.872
22	112.0208	1010.95	74.73	96.62	22.16	22.667	34.779
23	112.0840	1011.59	77.31	4.19	21.71	22.741	34.839
24	112.1486	1012.07	82.11	0.67	21.55	21.805	34.531
25	112.2059	1012.52	80.45	3.54	21.59	21.656	34.446
26	112.2724	1012.59	73.70	0.61	22.05	21.930	34.597
27	112.4025	1011.54	83.02	6.86	21.22	21.413	34.393
28	112.5390	1011.66	77.76	7.78	21.33	22.769	34.813
29	112.6156	1012.68	75.76	338.54	21.60	22.491	34.771
30	112.6772	1013.16	84.07	659.95	21.39	22.597	34.801
31	112.7423	1012.93	72.90	860.42	22.02	22.988	34.751
32	112.8002	1011.91	73.03	851.17	22.33	23.102	34.849
33	112.8637	1011.05	71.43	531.74	22.17	22.458	34.669
34	112.9366	1009.53	61.98	645.22	22.96	23.076	34.888
35	112.9875	1009.06	62.94	232.01	22.90	23.077	34.856
36	113.0354	1009.12	64.32	85.17	22.69	22.074	34.519
37	113.0967	1009.33	55.23	0.00	22.65	20.724	34.591
38	113.1577	1010.26	61.88	6.50	21.59	20.996	34.566
39	113.2155	1010.87	62.56	0.00	21.55	21.352	34.526
40	113.3719	1008.70	73.12	2.80	20.29	20.550	34.307
41	113.4512	1008.20	84.91	0.00	19.71	20.089	34.331
42	113.5194	1008.81	81.09	0.62	19.89	21.513	34.653
43	113.5816	1009.82	81.45	42.29	19.95	21.787	34.729
44	113.6487	1010.43	73.91	164.03	20.36	21.736	34.712
45	113.7137	1010.77	73.86	771.02	21.00	22.173	34.801
46	113.7697	1010.40	64.02	911.50	22.78	22.572	34.662
47	113.8639	1010.25	81.57	885.27	18.12	20.261	34.421

CTD Station	Yearday, 2013 (UTC)	Barometric Pressure (mb)	Relative Humidity (%)	Solar Radiation (W/m^2)	Air Temp. (^oC)	SST (^oC)	SSS
48	113.9268	1009.27	78.10	698.19	18.27	20.437	34.417
49	113.9919	1008.82	80.17	103.56	18.57	20.246	34.331
50	114.0509	1009.07	82.32	26.07	18.67	20.541	34.286
51	114.1193	1010.09	82.38	1.12	18.60	22.202	34.606
52	114.1796	1011.17	83.68	4.68	18.78	22.052	34.598
53	114.2369	1011.86	84.08	0.52	18.79	21.507	34.509
54	114.3816	1010.51	85.43	1.01	17.88	20.885	34.377
55	114.4568	1010.35	85.52	0.49	17.70	20.612	34.335
56	114.5172	1010.71	84.06	0.57	17.36	20.655	34.372
57	114.5791	1011.71	84.26	178.81	17.22	20.211	34.331
58	114.6421	1012.19	83.24	490.09	17.22	19.909	34.239
59	114.7069	1013.19	84.75	506.07	16.69	19.697	34.167
60	114.7726	1012.80	82.88	912.74	16.88	19.598	34.093
61	114.8310	1012.39	83.56	920.46	17.03	19.456	34.076
62	114.8834	1011.79	83.20	832.10	17.44	19.736	34.153
63	114.9348	1010.95	82.72	640.53	17.52	20.637	34.379
64	115.0505	1011.31	86.18	28.89	17.54	19.610	34.097
65	115.1294	1011.84	87.40	1.14	17.54	20.061	34.222
66	115.1982	1013.28	85.66	0.00	17.62	20.134	34.220
67	115.2565	1013.69	85.17	0.11	17.36	20.204	34.270
68	115.8320	1015.42	74.47	902.12	17.23	18.510	33.919
69	116.2240	1015.33	77.27	2.20	17.53	17.719	33.761
70	116.6417	1017.72	83.32	403.61	16.14	17.013	33.658
71	117.0925	1016.24	85.60	2.06	16.14	15.873	33.629
72	117.6424	1018.15	84.57	125.30	15.39	15.485	33.582
73	118.8315	1012.63	87.33	426.56	14.46	16.032	33.573
74	119.2054	1011.89	89.31	0.00	14.36	16.566	33.577
75	119.4256	1010.94	87.84	0.00	14.33	17.179	33.582

Appendix 9. **Apéndice 9**

Table 9: *Deck logs from the R/V Point Sur during the PESCAR24 cruise of April 2013.*
Tabla 9: *Registros de la cubierta de la R/V Point Sur durante el PESCAR24 de cruceros de abril de 2013.*

Month	Date	Hour (UTC)	Latitude (°)	Longitude (°)	Cloud Cover (0-8)	Visibility (n.miles)	Wind Speed (m/s)	Wind Dir. (°T)	Wave Height (m)	Swell Height (m)	Swell Dir. (°T)	SST (°C)	Barometer (mBar)
April	19	2	23.267	106.667	5	10	7.7	320	0.9	1.4	320	24.8	1015.2
		6	23.618	107.085	5	10	11.3	320	1.4	1.5	320	---	---
		10	23.985	107.472	1	10	9.2	334	1.8	---	---	23.3	1014.1
		14	24.085	107.780	0	12	8.2	320	0.9	1.7	320	23.4	1016.0
		18	23.950	108.055	2	12	7.7	320	0.9	1.7	315	23.6	1015.0
		22	23.850	108.250	0	10	9.2	320	1.8	---	---	22.8	1014.8
	20	2	23.782	108.415	1	10	9.2	320	1.8	1.8	320	22.9	1013.9
		6	23.728	108.512	0	10	7.7	320	1.5	1.8	330	22.7	1013.5
		10	23.685	108.647	0	8	9.7	320	1.5	---	---	22.6	1014.0
		14	23.640	108.730	2	10	9.2	320	1.5	1.5	330	22.7	1015.0
		18	23.637*	108.695*	3	10	6.2	330	0.9	1.5	330	22.7	1016.1
		22	23.640	108.890	3	10	1.0	---	0.3	1.2	330	22.8	1015.5
	21	2	23.533*	109.053*	2	10	5.1	230	0.3	1.2	330	22.8	1015.5
		6	23.513	109.137	4	10	5.1	230	0.5	1.2	330	21.7	1017.1
		10	23.523	109.135	2	10	3.1	180	0.0	0.9	330	22.2	1017.0
		14	23.510	109.143	2	10	2.1	150	0.0	1.2	330	22.2	1017.0
		18	23.458	109.300	3	10	4.1	140	0.0	1.2	330	22.2	1017.4
		22	23.678	109.548	4	10	5.1	120	0.8	0.0	---	22.7	1016.4
	22	2	23.640	109.417	4	10	3.1	150	0.2	0.0	---	22.8	1016.2
		6	23.798	109.292	0	12	1.0	---	0.0	0.5	330	22.3	1016.1
		10	23.535	109.055	1	10	1.0	---	0.0	0.6	330	22.0	1016.3
		14	23.235	108.982	2	12	1.0	---	0.0	0.9	---	22.2	1017.0
		18	23.232	109.248	3	12	6.2	180	0.3	0.9	---	22.2	1017.0
		22	23.050	109.478	3	12	6.2	243	0.6	0.9	180	23.5	1016.8
	23	2	23.800	109.503	7	10	4.1	260	0.5	0.9	180	22.9	1015.2
		6	22.763	109.122	3	10	5.1	230	0.6	1.4	230	22.8	1014.5
		10	22.555	109.425	4	10	9.7	280	1.2	0.9	270	21.0	1015.0

Month	Date	Hour (UTC)	Latitude (°)	Longitude (°)	Cloud Cover (0-8)	Visibility (n.miles)	Wind Speed (m/s)	Wind Dir. (°T)	Wave Height (m)	Swell Height (m)	Swell Dir. (°T)	SST (°C)	Barometer (mBar)
		14	22.745	109.580	3	10	5.1	300	0.6	1.1	270	21.7	1014.9
		18	22.912	109.712	4	10	11.3	300	0.6	1.4	270	21.6	1014.5
		22	22.717	109.932	3	10	8.2	315	1.8	---	---	21.3	1014.8
	24	2	22.532	109.940	3	10	10.3	315	1.8	---	---	21.7	1015.0
		6	22.283	109.933	4	10	7.7	300	1.5	1.7	270	22.2	1015.5
		10	22.360	110.338	2	10	7.7	310	0.9	---	---	22.1	1015.5
		14	22.617	110.333	3	10	7.7	330	0.9	1.2	315	22.2	1015.5
		18	22.808	110.332	4	10	6.7	315	0.9	1.2	315	20.4	1016.0
		22	22.970	110.222	3	10	3.6	315	0.9	1.2	200	20.8	1016.2
	25	2	22.937	110.437	3	10	7.7	330	0.9	---	---	20.3	1016.0
		7	22.858	110.730	5	10	5.1	340	0.9	1.2	270	20.3	1015.5
		11	23.220	111.250	7	10	7.2	324	1.2	---	---	19.8	1016.3
		15	23.575	111.747	7	10	10.3	344	1.2	1.2	195	19.5	1019.5
		19	23.930	112.228	5	10	11.8	330	1.5	1.8	330	19.4	1018.5
		23	24.207	112.467	2	10	9.7	340	1.8	1.2	310	18.8	1018.9
	26	3	24.690	112.765	3	10	7.7	330	1.5	1.7	310	18.6	1019.0
		7	25.075	113.013	4	10	10.3	330	1.2	1.7	340	18.3	1018.9
		11	25.505	113.325	6	10	10.3	340	1.8	1.2	320	17.5	1020.5
		15	25.937	113.660	1	10	9.2	335	1.1	1.2	320	17.5	1022.0
		19	26.285	113.918	3	10	11.3	320	1.4	1.5	320	17.4	1022.5
		23	26.997	114.512	1	10	11.8	320	1.8	---	---	17.8	1021.0
	27	3	26.997	114.510	1	10	12.8	320	1.8	---	---	17.9	1021.0
		7	27.295	114.850	4	10	10.3	325	1.8	---	---	17.7	1020.5
		11	27.660	115.280	5	8	12.8	340	2.2	---	---	16.1	1021.5
		15	28.030	115.713	8	8	10.3	350	1.4	2.2	340	16.1	1021.8
		19	28.337	115.698	8	8	10.3	340	1.5	2.3	350	17.8	1021.0
		23	28.848	115.650	8	7	10.8	320	1.8	1.8	350	17.6	1020.5
	28	3	29.265	115.730	8	6	15.4	330	2.2	2.5	350	17.7	1019.5
		7	29.655	115.845	8	8	10.3	340	1.5	1.8	320	17.8	1020.0
		11	30.105	115.935	8	6	8.2	0	0.9	1.2	320	16.5	1019.0
		15	30.393	116.098	8	6	9.7	350	0.9	1.5	320	15.9	1019.0
		19	30.880	116.473	8	6	9.2	340	0.9	1.5	320	17.4	1018.5
		23	31.258	116.715	8	6	10.3	320	1.2	1.2	340	16.1	1017.7
	29	3	31.758	116.963	8	6	9.2	330	0.9	2.5	340	16.1	1016.9

Month	Date	Hour (UTC)	Latitude (°)	Longitude (°)	Cloud Cover (0-8)	Visibility (n.miles)	Wind Speed (m/s)	Wind Dir. (°T)	Wave Height (m)	Swell Height (m)	Swell Dir. (°T)	SST (°C)	Barometer (mBar)
		7	32.122	117.205	8	6	5.1	320	0.9	0.9	330	16.1	1016.0
		11	32.560	117.445	8	10	1.0	---	0.0	0.9	240	17.9	1016.8
		15	32.627	117.237	8	8	1.0	---	0.0	1.2	260	17.7	1017.0
	30	15	32.722	117.462	8	8	4.6	200	0.3	0.0	---	17.2	1018.0
		19	32.722	117.462	8	8	4.6	190	0.3	0.5	320	18.5	1016.5
		23	33.000	117.985	8	8	3.6	187	0.3	0.6	320	---	---
May	1	3	33.313	118.577	8	8	2.1	230	0.3	1.1	320	18.7	1016.0
		7	33.853	118.945	6	10	3.1	340	0.0	0.5	330	17.7	1016.0
		11	34.168	119.678	7	10	2.6	260	0.3	0.9	290	14.8	1016.9
		15	34.328	120.385	7	10	2.6	330	0.6	1.5	280	15.4	1018.0
		19	34.618	120.967	6	8	4.1	330	0.6	2.2	310	13.7	1018.5
		23	35.197	121.452	4	8	1.0	---	0.3	1.8	310	14.4	1020.8
	2	3	35.513	121.730	3	6	5.1	45	0.3	1.8	310	13.5	1021.0
		7	36.078	121.960	5	8	4.1	340	0.5	1.8	320	13.9	1015.0
		11	36.595	122.078	3	10	6.2	60	0.5	1.8	310	12.3	1020.9
		15	36.805	121.787	2	6	7.7	125	0.3	1.5	310	13.6	1021.8

* Ship positions from UDAS system, as they were not recorded in the deck logs.
* Posiciones del buque del sistema UDAS, ya que no fueron registrados en la cubierta.

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