MEMORANDUM REPORT

To: Office of the Chief of Naval Operations (Op-654)
Attn: CDR J. D. Harrison
Contract No. N00014-83-C-0110

From: W. R. Stromquist

Subject: Final Report on DHWA Modeling Efforts for NNWS, FY 1985

This firm has made technical contributions in five areas under the subject contract. Our efforts in each area have been reported separately in a series of technical memoranda.

The purposes of this final report are to describe briefly the work done in each area, and to list the technical documents delivered under this contract. The areas are:

1. Battle Group ASW Models

References [a] and [b] constitute an SCP for the incorporation of Battle Group ASW Contract Processing into NNWS. These memoranda represent a completion of the plan originally described in reference [c]. After the preparation of references [a] and [b], funding cuts made it unlikely that the recommendations made could be implemented in the near term. Accordingly, we developed a "first-order" model which could give NNWS a significant capability to model BG ASW contact prosecution, and yet could be implemented within a realistic near-term level of effort. The first-order model is described in references [d], [e], and [f].
2. Blue-Out Effects

Our recommendations for incorporation of Blue-Out effects in NNWS are contained in reference [g], building an earlier work in references [h] and [i]. Although it is not as exhaustive as a formal SCP, we believe that reference [g] is sufficiently detailed to enable a straightforward incorporation of blue-out effects into the simulation.

3. Red ASW and Updated VP Search Models

Reference [j] is an SCP containing our recommendations for modeling Red fixed-wing air assets in NNWS. It builds on earlier work described in references [k], [l], [m], and [n], and on our best understanding of the issues raised in reference [o].

The Red ASW model made use of the analogy to Blue VP search operations. As our earlier work on VP search had not been implemented in NNWS, we expanded the Red ASW task to include updating of our VP-search work and support for its full implementation. Our work on VP search under the current contract is documented in references [p] and [q]. It has now been fully implemented.

4. SOSDET Modification

References [r] and [s] constitute an original and expanded version of an SCP to modify SOSDET to eliminate problems that had been observed by STRATSIM. These references built on the preliminary analysis of reference [t]. The changes recommended in the expanded SCP have now been fully implemented in NNWS.

5. Detection Opportunity Scheduling

References [u] and [v] are, respectively, an SCP and subsequent analysis concerning scheduling of detection opportunities. With the changes recommended, detection events will execute in NNWS only when the units involved are actually within the maximum detection range, without regard to earlier predictions.
6. Status Reports

For completeness, the four status reports prepared during FY 1985 are listed as references [w] through [z].

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WRS/cmm


