Navy METOC R2O

An Overview of the Navy Meteorology and Oceanography (METOC) R2O Process

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Navy METOC Organization

CHIEF OF NAVAL OPERATIONS

U.S. FLEET FORCES COMMAND

NAVAL METEOROLOGY AND OCEANOGRAPHY COMMAND

Mission: Define and apply the physical environment, from the bottom of the ocean to the stars, ***to ensure that the U.S. Navy has the freedom of action to deter aggression, maintain freedom of the seas and win wars.***

Vision: The Department of Defense's authoritative source for characterization, and applying data, of the physical battlespace into winning decisions.

NAVAL OCEANOGRAPHIC OFFICE

FLEET NUMERICAL METEOROLOGY AND OCEANOGRAPHY CENTER

U.S. NAVAL OBSERVATORY

Production

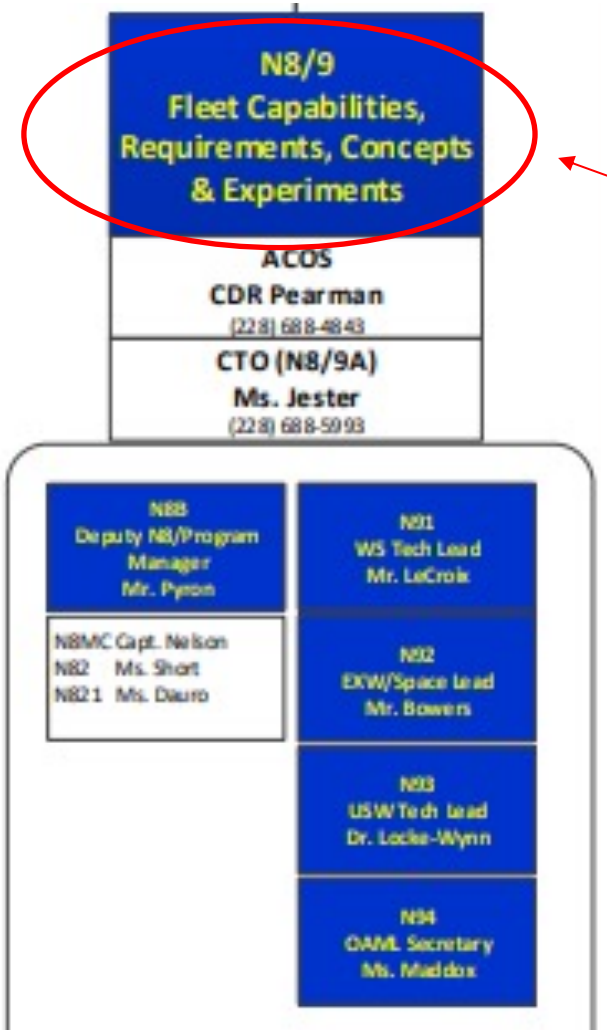
NAVAL OCEANOGRAPHY OPERATIONS COMMAND

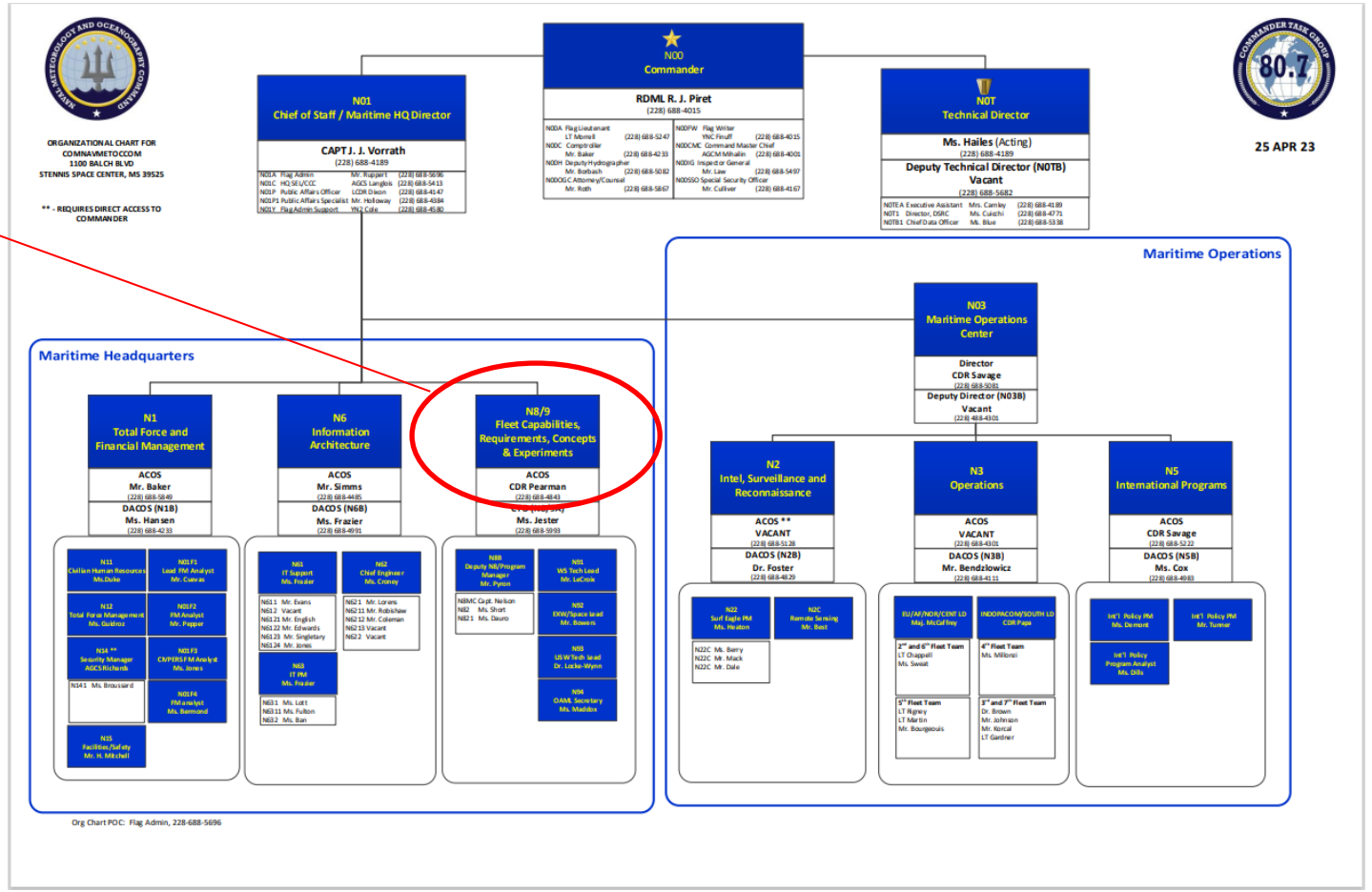
FLEET WEATHER CENTER NORFOLK

FLEET WEATHER CENTER SAN DIEGO

Fleet Operations/Frecasts

CNMOC Organization





Research Entrants

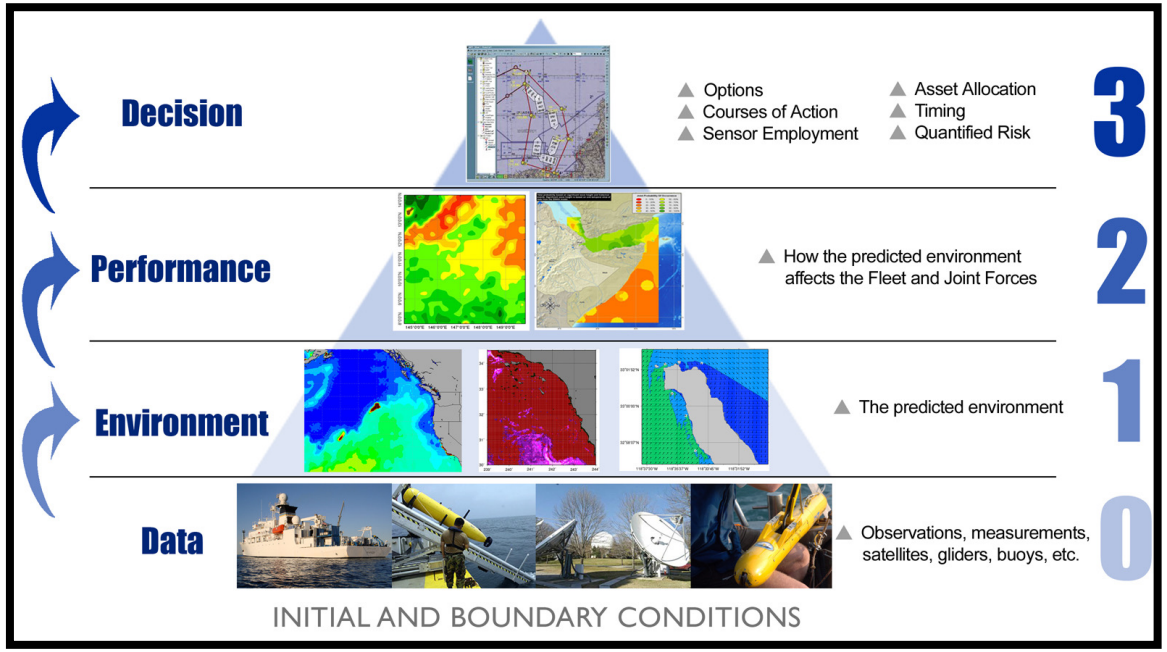
METOC needs identified through Navy operational requirements – (i.e. an aircraft needs to perform an operation in a specific area

These are typically identified from Fleet Oceanographers

Physical/environmental capability requirements are developed from mission requirements

Validated needs and requirements are sent to OPNAV N2N6E (Pentagon) for prioritization and funding

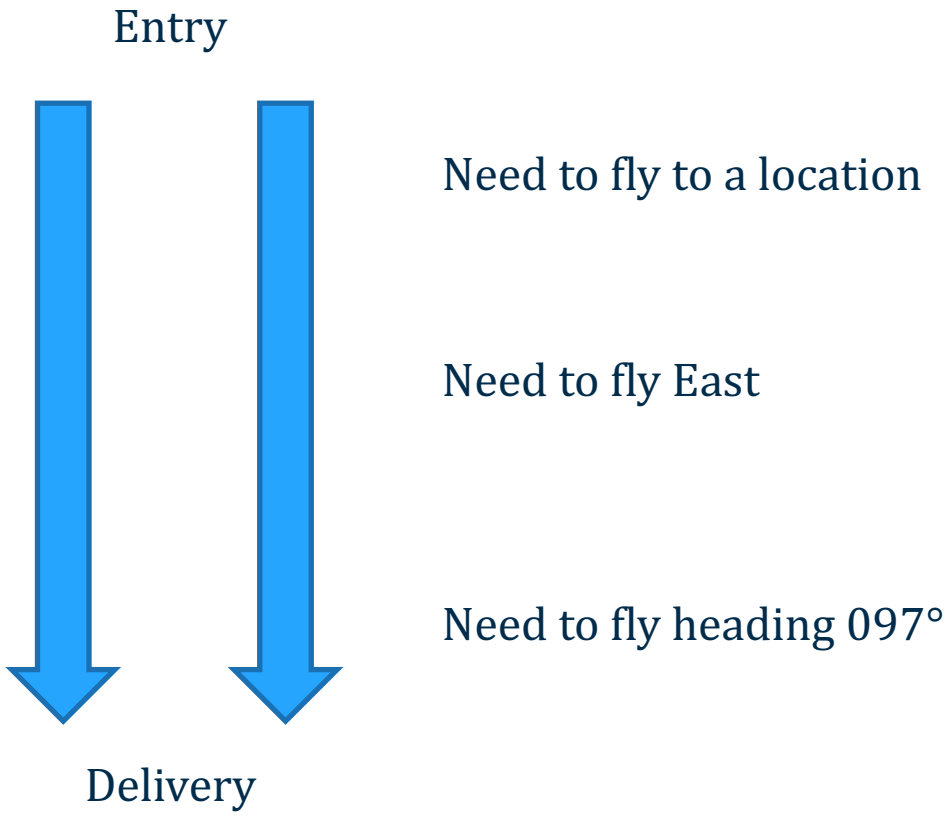
R/D is then "bid out" (NRL, private companies, Academia) per Federal Acquisition guidelines



Where does the problem set fall in decision making

Phases of R/D – cost vs. complexity

Time to delivery based on complexity of the capability



CNMOC is involved with the process from entry to delivery to the fleet

Transition to Operations

Transition factors integrated through out the R/D process

- Complexity of the capability

- As-is state of the recipient system (aircraft, ship, UV, forecaster)

- "CYBER as we go" – security is paramount

- are the right people answering the questions (i.e. for a weather capability, are there qualified meteorologists involved in the process)

- Fleet testing, testbeds, real-time metrics collection

- risk assessment throughout

How can we ensure a clean handoff??

Recent R2O efforts

Joint Typhoon Warning Center TC Decision Aids

Technical Capability - Improved track, intensity, wind radii estimates and forecast guidance for use by forecasters at JTWC, FWCs and other warfighting units.

Joint venture between USAF/NASA-JPL/Naval Research Lab.

Warfighter Impact -

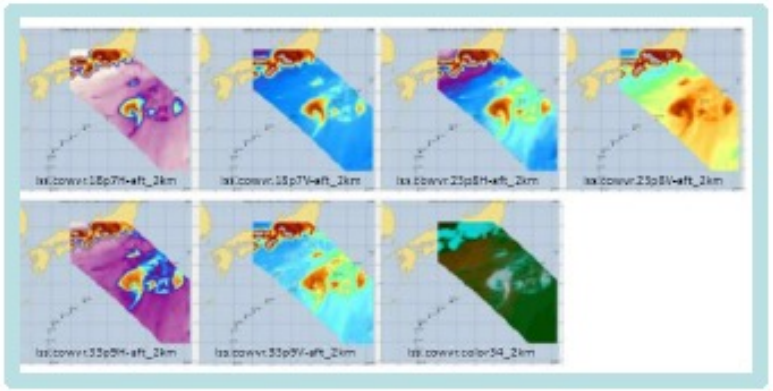
JTWC uses guidance to improve forecast and end products (e.g., warnings)

•FWCs/SGOTs use TC aids for resource protection afloat and ashore

•Navy projects “soft power” by leading in operational forecasting (including NWP and remote sensing)

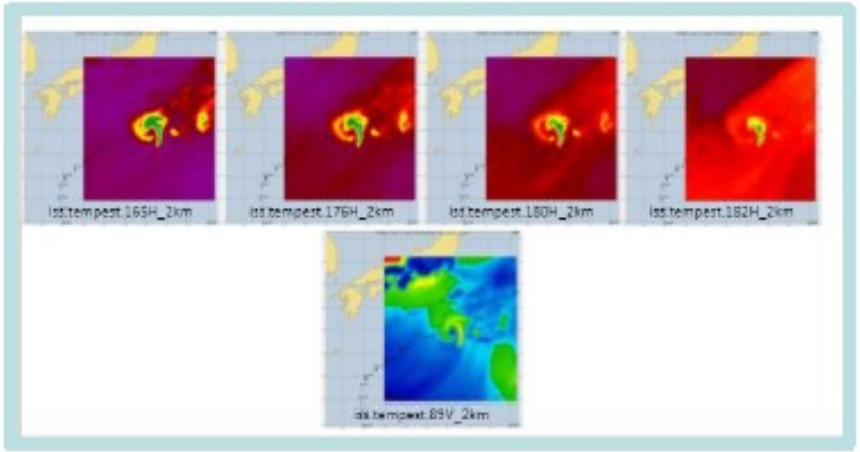
Acceptance Criteria - Software will be installed on the ATCF and documentation describing updates will be delivered to JTWC. The major deliveries (e.g., models) shall be validated with JTWC. Delivery will be through yearly installations at JTWC.

COWVR



Compact Ocean Wind Vector Radiometer

TEMPEST



Temporal Experiment for Storms and Tropical Systems