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Oceanography and Meteorology: Enabling Maritime Superiority

"*METOC support is critical to find and fix terrorist insurgent networks in the Global War on Terrorism.*"
Rear Adm. Joe Kernan, COMNAVSPECWARCOM

70% of the world is water, 80% of the world lives on or near the coastline and 90% of our commerce sails across it. Any disruption in that chain caused by instability has a direct impact on American quality of life (Maritime Strategy). The Naval Meteorology and Oceanography Command (NMOC) translates information about the ocean, atmosphere, time and space into warfighting decision superiority – enabling us to make better decisions faster than the adversary.

Warfighting Effectiveness

- Naval Oceanography Sailors deploy worldwide, injecting tactical and operational expertise in Iraq, Afghanistan, HOA, HA/DR events, and major Fleet and Joint/Combined operations and exercises.
- 49% of NSW GWOT combat missions have been enhanced by embedded Naval Oceanography Sailors.
- Naval Oceanography MIW Sailors use unmanned systems extensively to characterize the battlespace.
- Forward personnel are supported by reach-back cells where civilians and Sailors work side-by-side to provide expertise and computing power for tailored ocean and atmospheric products and services.
- Commander Undersea Surveillance (CUS) performs worldwide strategic maritime surveillance and operational ASW using undersea sensors and Surface Surveillance Ships (T-AGOS).
- The Naval Oceanographic Office (NAVO) is the largest oceanographic center in the world and collects, analyzes, and forecasts global ocean structure to provide specialized products and services to DoD.
- Fleet Numerical Meteorology and Oceanography Center (FNMOC) uses high-performance computing to operate DoD's only global weather model – the foundation for high resolution tailored weather products.

Keeping the Fleet safe

- The U.S. Naval Observatory (USNO) operates the world's most accurate atomic clocks, which in combination with astrometric star catalogs, synchronize critical DoD systems in space and time like GPS.
- All Naval flight activity is supported by Naval Aviation weather forecasters generating aviation forecasts and aviation weather warnings in CONUS and overseas.
- Naval Maritime Forecast centers in Pearl Harbor and Norfolk provide storm avoidance recommendations, hazardous weather advisories, and weather forecasts to nearly 200 ships daily.
- Navy and Air Force forecasters work together in the Joint Typhoon Warning Center to predict typhoons and cyclones for the U.S. and allies from the date-line to the east coast of Africa – more than 60 storms in 2007. The Office of Naval Research also conducts investigations of the ocean and atmosphere to support improved prediction for these storms.
- The Naval Ice Center (also the National Ice Center in partnership with Department of Commerce), is the nation's only global ice tracking and forecasting center – a critical defense and commercial support entity.

Key Messages

- Naval Oceanography leverages joint, interagency and international partnerships to provide cost-effective technical excellence and force shaping/security cooperation associated with the Maritime Strategy.
- Naval Oceanography underpins every aspect of naval operations and warfare.
- Naval Oceanography maintains the safety of the Navy's ships, aircraft, submarines and shore assets.

Facts & Figures

- NMOC includes seven oceanographic survey ships; five ocean surveillance ships; 368 officers; 1,633 enlisted; 1,461 civilians.
- Two high-performance computing centers at NAVO (Stennis Space Center, Miss.) and FNMOC (Monterey, Calif.) provide world-class ocean and atmospheric analyses and forecasts.
- More than 90 atomic clocks at USNO (Washington; Colorado Springs) provide nanosecond (10^{-9} sec) level accuracy.