

Geophysics

NAVAIR Geophysics conducts weather observation and forecasting for tests and operations at the NAVAIR Land Ranges, the Sea Range, and three airfields, including San Nicolas Island. Numeric oceanic and atmospheric prediction models are run daily for the Southern California areas, and as-scheduled for Range projects.

TECHNICAL CAPABILITIES

The Geophysics Branch supports Test Operations and other Navy/DoD customers in all facets of atmospheric and oceanographic planning, data collection, prediction, analysis and modeling. Customized climatology products are developed to meet customer needs and unique location or output requirements. Weather and ocean measurement systems are deployed throughout the Land and Sea Ranges to characterize conditions for operational analysis and project forecasting, and to provide post-op data, real-time Go/No-Go calls, and safety support.

PRODUCTS

RANGE

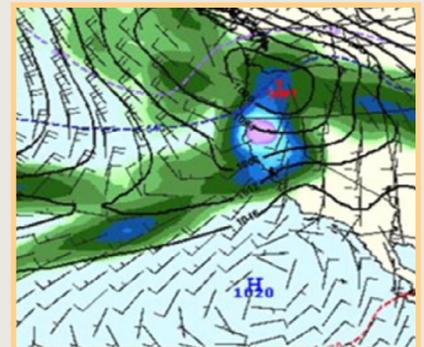
- Tailored, direct project (DPA) forecast support
- Real-time, high-resolution satellite imagery and weather data display in control rooms
- Range weather warnings (thunderstorms, high winds, high seas, small craft, etc.)
- Upper atmospheric soundings (balloons)
- Direct measurements using surface weather stations, wind poles, tethersondes and 2-D aerial flight measurements using helicopters
- Post-operation weather data packages
- Special products such as Chaff drift, ducting, aerosol dispersion, line-of-sight analysis, etc.

AVIATION

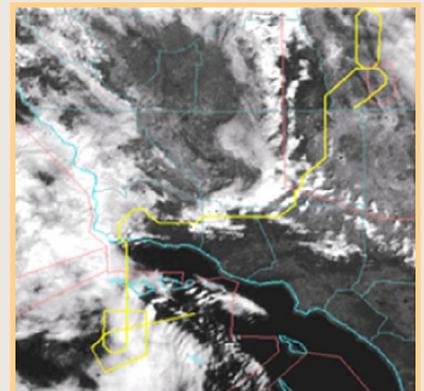
- Airfield observations
- Aviation briefings (DD175-1)
- Airfield warnings

FOR MORE INFORMATION

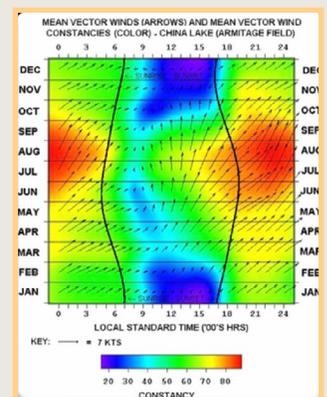
(805) 989-5040
575 South I Avenue, Suite I
Point Mugu, CA 93042
www.navair.navy.mil/ranges



High-fidelity area and point forecasting of weather



Satellite pictures with Range and track overlays



Climogram of stations, available worldwide, depending on data

Geophysics

ATMOSPHERIC MODELING

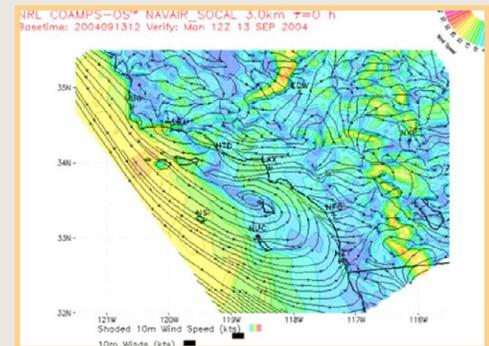
The Geophysics Branch creates numerically modeled products of effects for scenario planning and range sustainment, including:

- Gridded plots of atmosphere
- Ducting effects on sensors
- Sensor sensitivity / boundary effects:
 - Line-of-sight
 - Thermal crossover
 - Visibility and atmospheric extinction calculations
 - Sound propagation
 - Sensor overlap
 - Microwave hazards
- Chaff drift hazard prediction
- Particle, aerosol and obscurant drift
- Air pollution transport

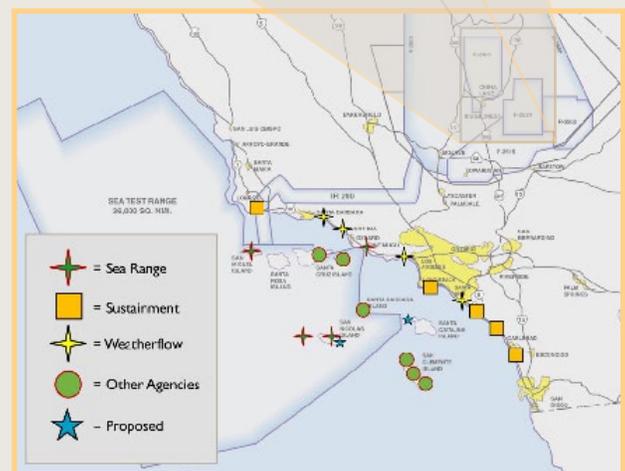
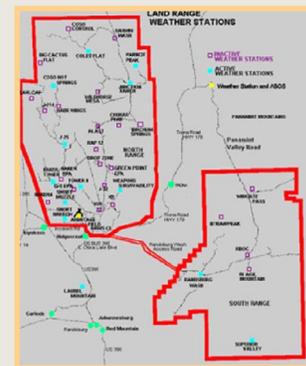
REAL-TIME SENSOR COVERAGE

In cooperation with CDIP/Scripps, Weatherflow, Inc., and other agencies, the Geophysics Branch operates a small mesonet that provides real-time weather data for both the Land Ranges and the Sea Range, and adjacent areas.

- Upper air observations to ~120,000 feet are conducted upon request – at three fixed sites and using one mobile enclosure – using Vaisala Digicora 3 and RS92 or RS80 sondes
- Atmospheric electricity measuring field mills are monitored hourly at Point Mugu, San Nicolas Island, and China Lake
- On-range HANDAR 555, 540, Weatherflow and Davis remote weather stations: TEMP, PRESS, RH%, WIND SPD, WIND DIR, and special sensors such as SOLAR ENERGY
- Remote wind poles and tethersonde systems are deployable
- 915 MHz wind profiler is installed at the Sea Range mainland, provides 15-minute readings of winds to ~3 km altitude
- Waverider buoys are fully deployable offshore
- Meteostar “LEADS” meteorological data and display system employing GVAR / DSAT GOES 8 and GOES 10 groundstation and NOAAPORT data feed; SMQ-11 satellite Receiver provides real-time, high-resolution GOES data
- COAMPS model is run on a Linux cluster daily to 6 km grids, forecasting 72 hours, tailorable to special operating areas
- An interpolated wind analysis is calculated hourly for a Southern California offshore and nearshore Nowcast



COAMPS high-fidelity forecast model, capable of 2 km resolution



Sensor coverage

WEB SITES:

- <http://www.navair.navy.mil/nawcwg/weather/mughandar.html>
- <http://www.navair.navy.mil/nawcwg/weather/chinalake/clweather.html>
- <http://www.sccoos.org/data/coamps/coamps.html>