Use of QuikSCAT Winds at NWS Field Offices

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Overall Marine Forecast Challenge

(From a white paper on Marine Observation Requirements.)

"Of vital importance to marine weather forecasting, warning, and modeling is an awareness of current oceanic and atmospheric elements...achieved through continuous, real-time monitoring of ocean and atmospheric elements."

Coastal WFO Responsibilities

- CWF with wind speed and direction to 5 days and updated every 6 hours
  - Wind speed at 5 kt increments; 12 hour period
  - Direction on 8-point compass
  - 0-60 nmi from coastline
- SCA, Gales and Storm (21kt, 34kt, and 50kt) are primary focus of verification

Much talk on national center use, but what about WFO's?

- Informal Survey of forecasters at Seattle, Portland and Juneau reveals good news and bad news:

First the Bad News...

- Only about half of forecasters use QuikSCAT at least *occasionally*, ie. once every week or two during fall/winter
- Reasons cited for lack of use:
  - Availability of hourly near-shore data (buoys, C-Mans, Coast Guard stations, etc.) versus two satellite passes per day
  - Lack of QuikSCAT data over inland channels/ waterways and within 30 km of shore
  - Never became a regular part of forecasting "routine"
  - ACCESSIBILITY and DISPLAY

…The Bad News (continued)

- Accessibility:
  - Took until 2004 for QuikSCAT to become a national AWIPS baseline product
  - Until recently, WR supported a back-door way to get QuikSCAT data onto the AWIPS WAN, but data stream was inconsistent and experienced frequent interruptions
  - Some forecasters think it's inconvenient to look for "operational" data on the web

…The Bad News (continued)

- Display:
  - Nearly every forecaster cited poor visual display, one calling it “uninviting”
  - There are not time stamps for individual satellite passes
  - Needs to be available as a gridded data set with better zooming and contour capabilities
  - Needs to be a capability to initialize IFPS grids with latest QuikSCAT data from the “outer” coastal waters

Now the Good News...

- Every forecaster questioned had heard of QuikSCAT and recognized its potential usefulness
- None thought it should go away
- Of those who use it, nearly all described it as a valuable data source
- One forecaster indicated QuikSCAT data had made the difference in deciding whether to issue Gale and Storm Warnings

…The Good News (continued)

- Forecasters indicated greatest usefulness is for situations when Gale or Storm force winds are forecast within 0-2 days (this is where we make our money!)
- Used for model validation, extrapolation of close upstream features, and determining location of quasi-stationary features (eg. gap winds)

Other considerations:

- Dollars are now being diverted from replacing coastal weather buoys to fixing open-ocean tsunami detection buoys
- Even when dollars are not tight, buoys that go adrift are sometimes not fixed for several months
- QuikSCAT is quite useful in filling in these gaps

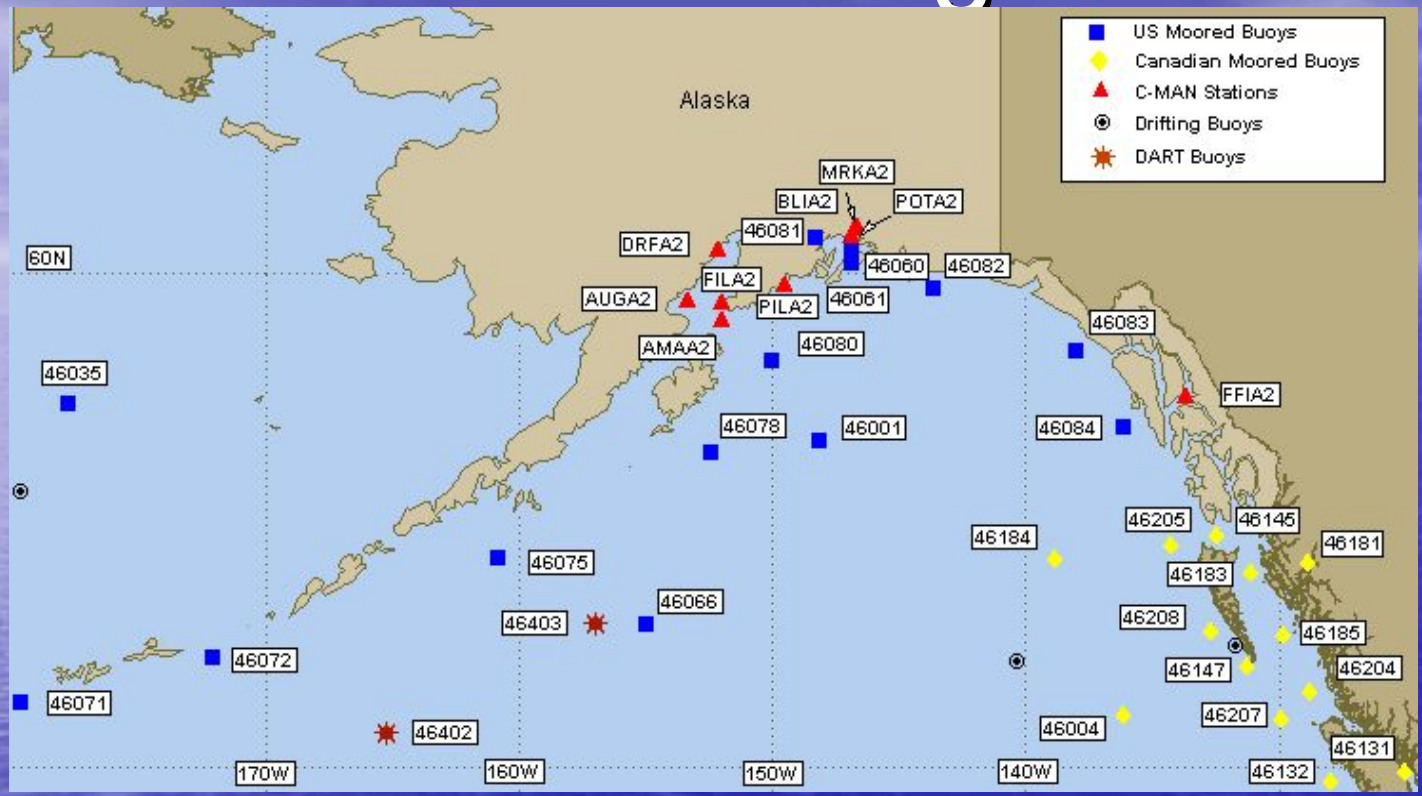
Other uses:

- Anticipating Southern Hemisphere swell on southern California beaches up to one week in advance
- Incident support

Incident Support

M/V Selendang Ayu related Oil Spill near Dutch Harbor, AK

The Challenges

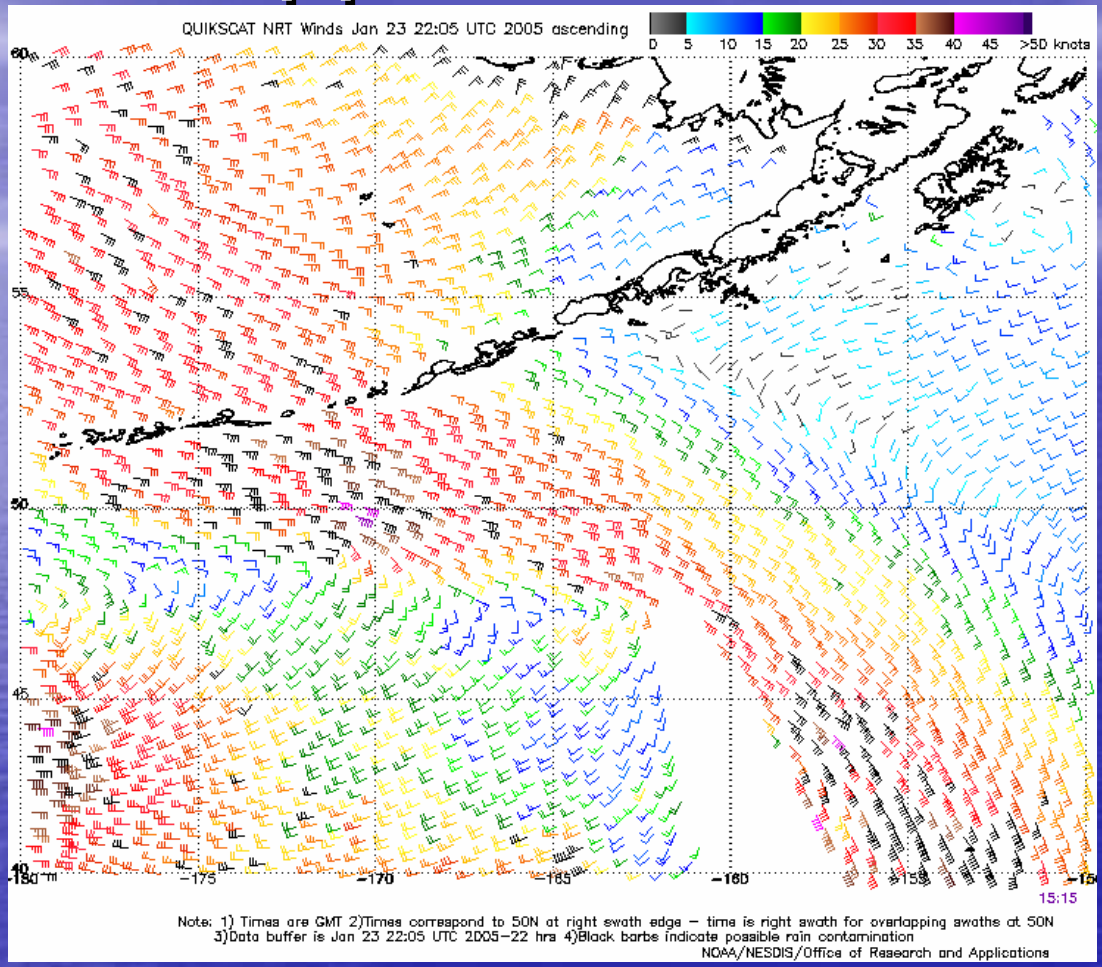


- Data Sparse environment with several broken buoys
- Harsh wintertime Aleutian weather
- Lives, big-dollar recovery decisions, and the environment at risk

Incident Support – A Success Story

- Incident Meteorologist Jim Prange noted that QuikSCAT was the only non-land-based observational data available there
- He and Incident Planners checked on QuikSCAT data 4-6 times daily
- Was very useful in forecasting wind waves and swell
- On one day, QuikSCAT showed 40-knot winds while a model initialization showed 70 knots just to their southwest, invalidating the model initialization
- QuikSCAT wind data were included in every briefing

Incident Support – A Success Story



- NOAA Hazmat personnel at incident say they now want this kind of weather support/data at every large incident

In Summary...

- QuikSCAT has not been widely embraced at local NWS field offices but has proven useful at times
- Accessibility and display need significant improvement, especially in the AWIPS environment
- Tightening budgets for buoy maintenance will make QuikSCAT data even more critical to near-shore forecasting
- QuikSCAT data has been vital to ongoing oil spill recovery efforts in the Aleutians

Questions?

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