Integrated Aviation Weather Services in Alaska

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Aviation Weather Community Forum
Aviation Weather Center
April 14, 2009

Today…

Alaska Aviation Weather Center (AAWC)

- Meteorological Watch Office
  - SIGMET
  - AIRMET
  - Area Forecasts
  - Development of IC4D in Alaska

Anchorage VAAC

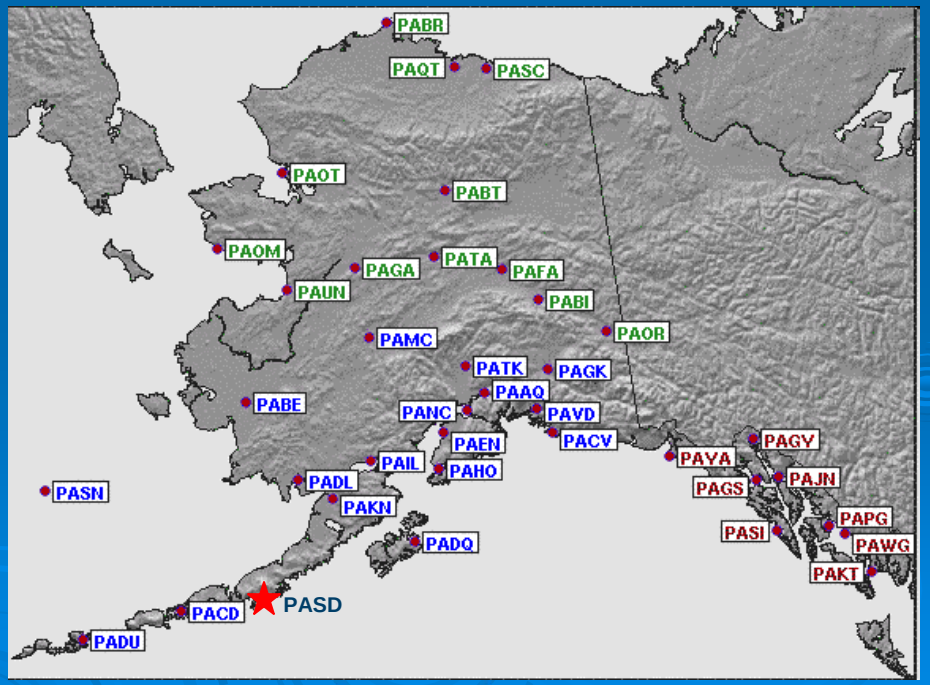
- Volcanic Ash Advisory
  - Coordination with FAA, AVO, other customers
  - Coordination with NOAA ARL and NCEP SDM on producing official HYSPLIT run for the eruption
  - Coordinate with other MWOs, adjacent VAACs (Tokyo, Montreal, Washington)

Center Weather Service Unit

- ZAN CWSU
  - Center Weather Advisory (CWA)
  - Meteorological Impact Statement (MIS)
  - Advise and consultation to ARTCC, and other FAA customers
  - Tailored wx support to the FAA

Weather Forecast Office

- WFO's Anchorage, Fairbanks, Juneau
  - Provide TAF's across the state of Alaska
  - Anchorage produces 17 TAF's – the most in the NWS
  - 39 TAF's statewide



Alaska Region

- Regional Aviation Meteorologist
  - Provides aviation weather support to all Alaska Region field offices
  - Coordinates regional and national policy regarding aviation weather and volcanic ash
  - Facilitates project support (e.g. IC4D – contractor, hardware, software, etc.)
  - Coordinates regional implementation of policy (e.g. SSTAC – **S**ite **S**pecific **T**AF **A**mendment **C**riteria)

Future…

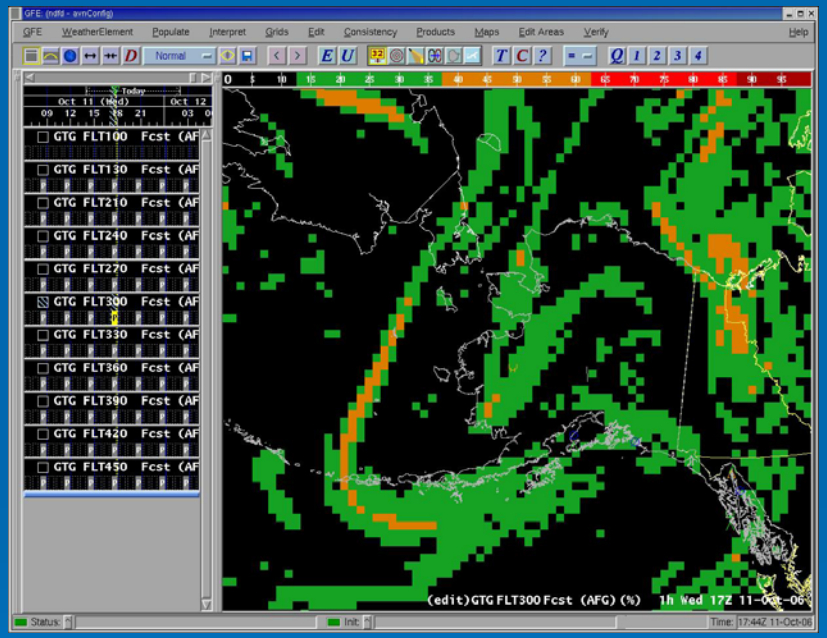
AAWC

- **Phase I (2009-2014)**

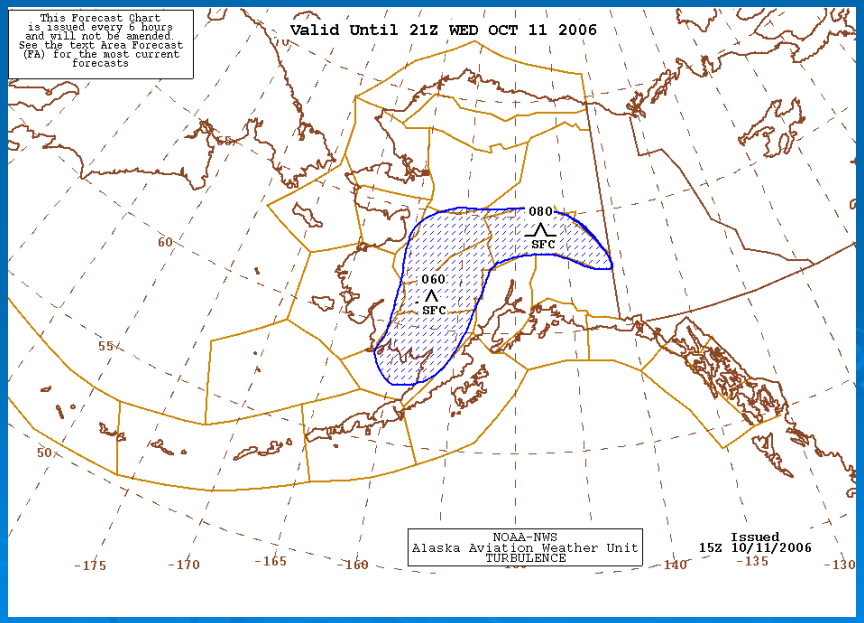
- Fully integrated aviation operation running IC4D within Alaska Region

  - Alaska Strengthening Plan
  - Grid sharing with WFO's
  - AAWC "keeper" of the Alaska domain (database)
  - SIGMET, AIRMET, and Volcanic Ash Advisory derived from a hazard grid
  - Collaboration with Marine program in the Pacific

Grids to Products



- Existing graphical forecast products could be derived from forecaster-adjusted grids as a start.



AAWC

- **Phase II (2015-2019)**

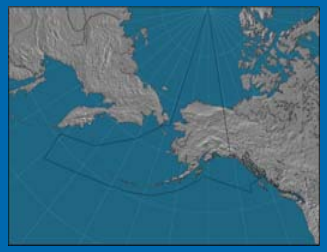
- Grid sharing with partners (e.g. aviation – AWC, WFO HFO, etc.)
  - Alaska Strengthening Plan
  - Grid sharing within Alaska and with partners outside of Alaska
  - “Seamless” gridded product
  - Weather grids feed into NextGen

Roadmap for the Future

- NextGen requirements will drive NWS Aviation Program
- NWS offices will leverage resources, share best practices.
- Decision support products (TDA) will “fall out” of the grids.


NCEP
Alaska DHS&EM
Environment Canada
ALASKA REGION
USGS
WFOs
RFC
AAWC
WSOs
TWC
WFO HNL
NextGen
FAA
DOD

Information Flow

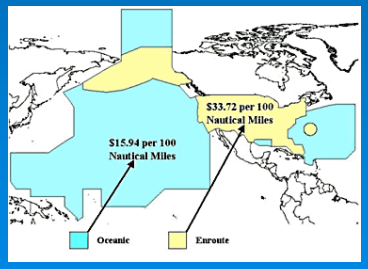


AAWC

Alaska

NDFD

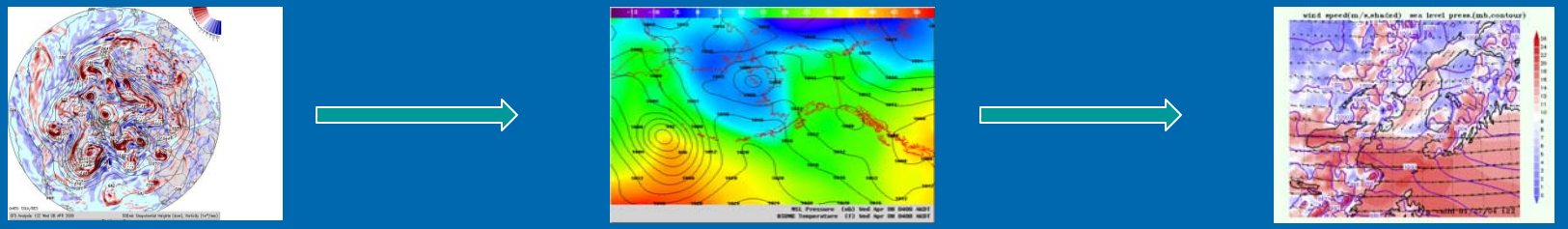
U.S.



NextGen

U.S. Airspace

More Data…More Often…



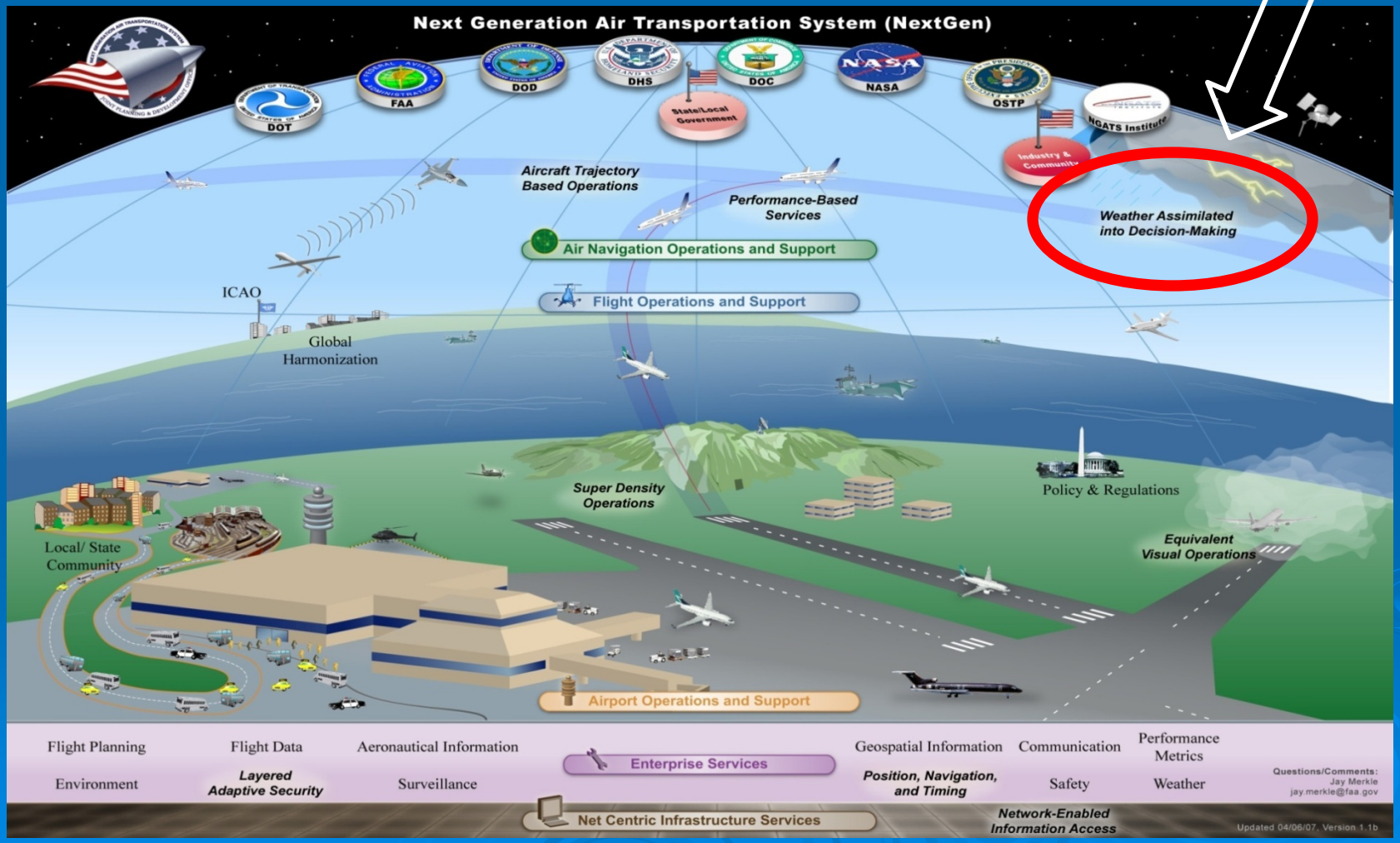
- Modeling – higher resolution models, smaller time steps (particularly in the short term 0-30 hrs. to support aviation)
- End stage - Meteorologist will be “over the loop” – person cannot value add at very small time steps
- Real time integration of a variety of data sets including radar, satellite, surface observations, PIREPs, etc.

Linkage of IC4D to NextGen

NextGen

- By 2025, U.S. air traffic is predicted to increase two to three times.
- Traditional air traffic will not handle the growth, NextGen is the solution.
- Weather accounts for 70% of all air traffic delays within the U.S. National Airspace System (NAS)
  - The Federal Aviation Administration (FAA) has determined two thirds of this is preventable with better weather information

Weather and NextGen



NextGen Key Themes

- An integrated and nationally consistent common weather picture for observation, analysis, and forecast data available to all system users
- Direct integration of weather information into operational decision making processes

- Also applies to IC4D efforts in Alaska

4D Cube & NextGen

- The 4-Dimensional (4-D) Weather (Wx) Cube (3 dimensions plus time) will contain:
  - Continuously updated weather observations (surface to low earth orbit, including space weather and ocean parameters)
  - High resolution (space and time) analysis and forecast information (conventional weather parameters from numerical models)
  - Aviation impact parameters
    - Turbulence
    - Icing
    - Convection
    - Ceiling and visibility
    - Wake vortex
  - The 4-D Wx Cube of the future will contain “all” weather data, not just aviation parameters.

Today

- Not integrated into aviation decision support systems (DSS)
- Inconsistent/conflicting on a national scale
- Low temporal resolution (for aviation decision making purposes)
- Disseminated in minutes
- Updated by schedule
- Fixed product formats (graphic or text)

NextGen (new requirements)

- Totally integrated into DSS
- Nationally consistent
- High temporal resolution
- Disseminated in seconds
- Updated by events
- Flexible formats

Summary

- Move to grids is a paradigm shift in Aviation Weather Services in Alaska
- Alaska Region Strengthening Plan supports IC4D development and movement to NextGen
- Alaska Region Integrated Aviation Services align nicely with the goals of NextGen

Questions??

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