



# Alaska aviation forecast operations and challenges

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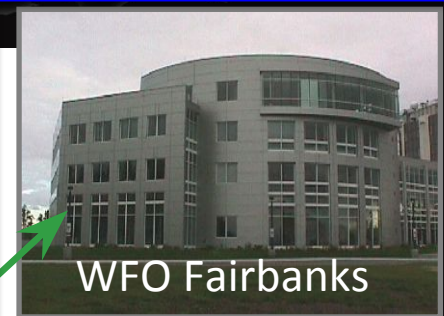
# Alaska Region Facilities

- ★ Weather Forecast Office (WFO)
- Weather Service Office (WSO)
- T West Coast and Alaska  
Tsunami Warning Center (WCATWC)

## ▲ In Anchorage:

Weather Forecast Office (WFO)  
Alaska Aviation Weather Unit (AAWU)  
Center Weather Service Unit (CWSU)  
Alaska Pacific River Forecast Center (APRFC)  
Alaska Region Headquarters (ARH)

## Aviation forecasting responsibility



## Center Weather Service Unit

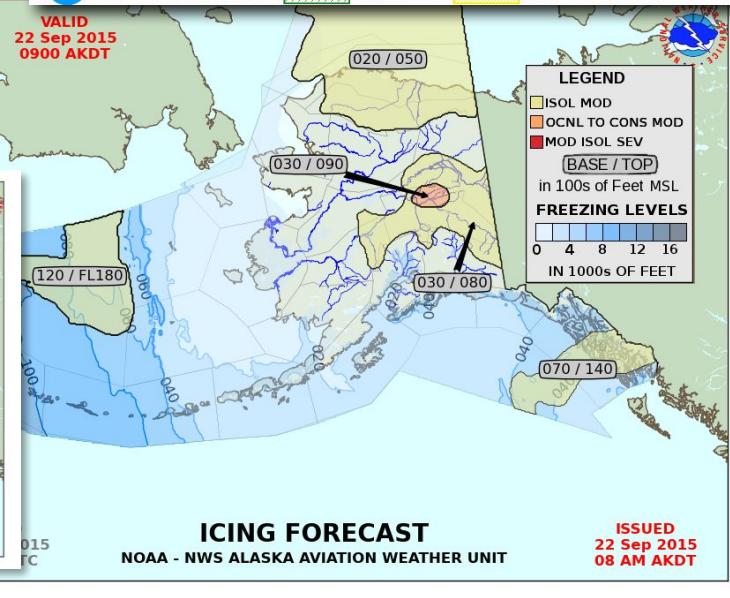
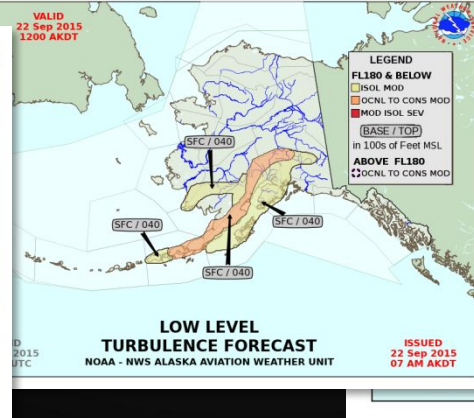
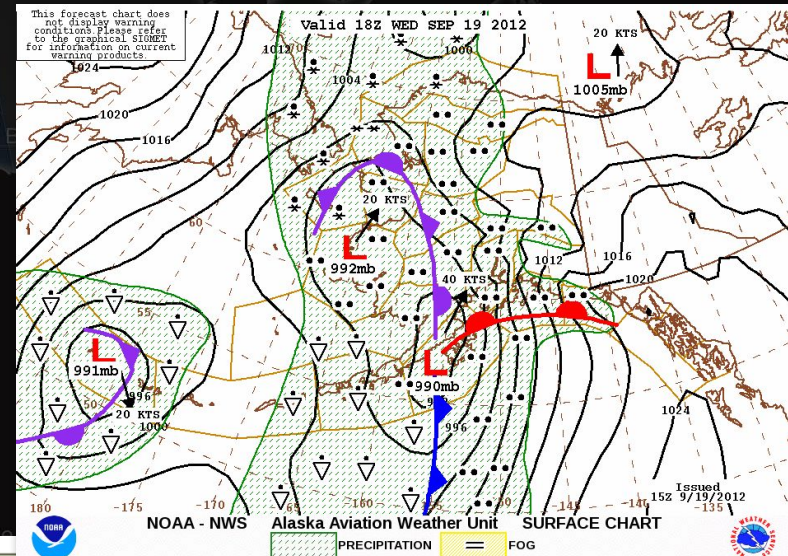






# Alaska Aviation Weather Unit

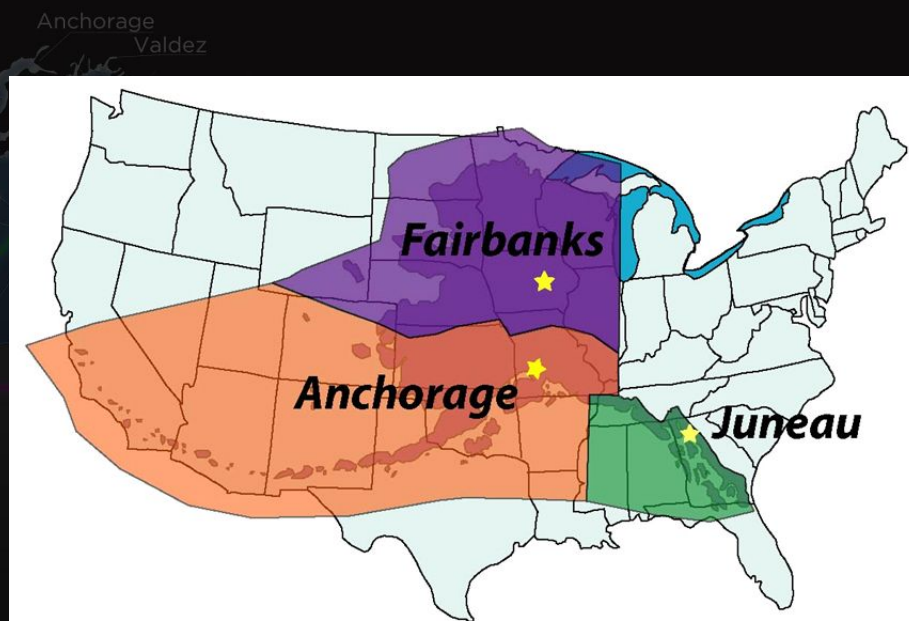
- Forecasts for AK's 2.4 million sq. mile airspace with involvement from 5 offices (3 WFOs, CWSU, and AAWU)
  - Graphics, Area Forecasts, AIRMETs, and SIGMETs
- Need for a strong internal collaborative forecast process
  - Gridded forecasts critical!
- Close partnerships with FAA, industry, and aviation partners to help guide services





# Weather Forecast Offices

- Public Forecasts for the next 7 days.
  - Sky conditions, precipitation, and wind
  - Watches, warnings, and advisories for defined criteria
- Marine Forecasts for the next 5 days.
  - Winds and wave heights
  - Marine warnings
- Terminal Aerodrome Forecasts (TAFs) for the next 24-30 hours
- Other Duties:
  - Fire Weather
  - Flood products
  - Sea Ice (Anchorage only)
  - Data collection







## Anchorage Center Weather Service Unit

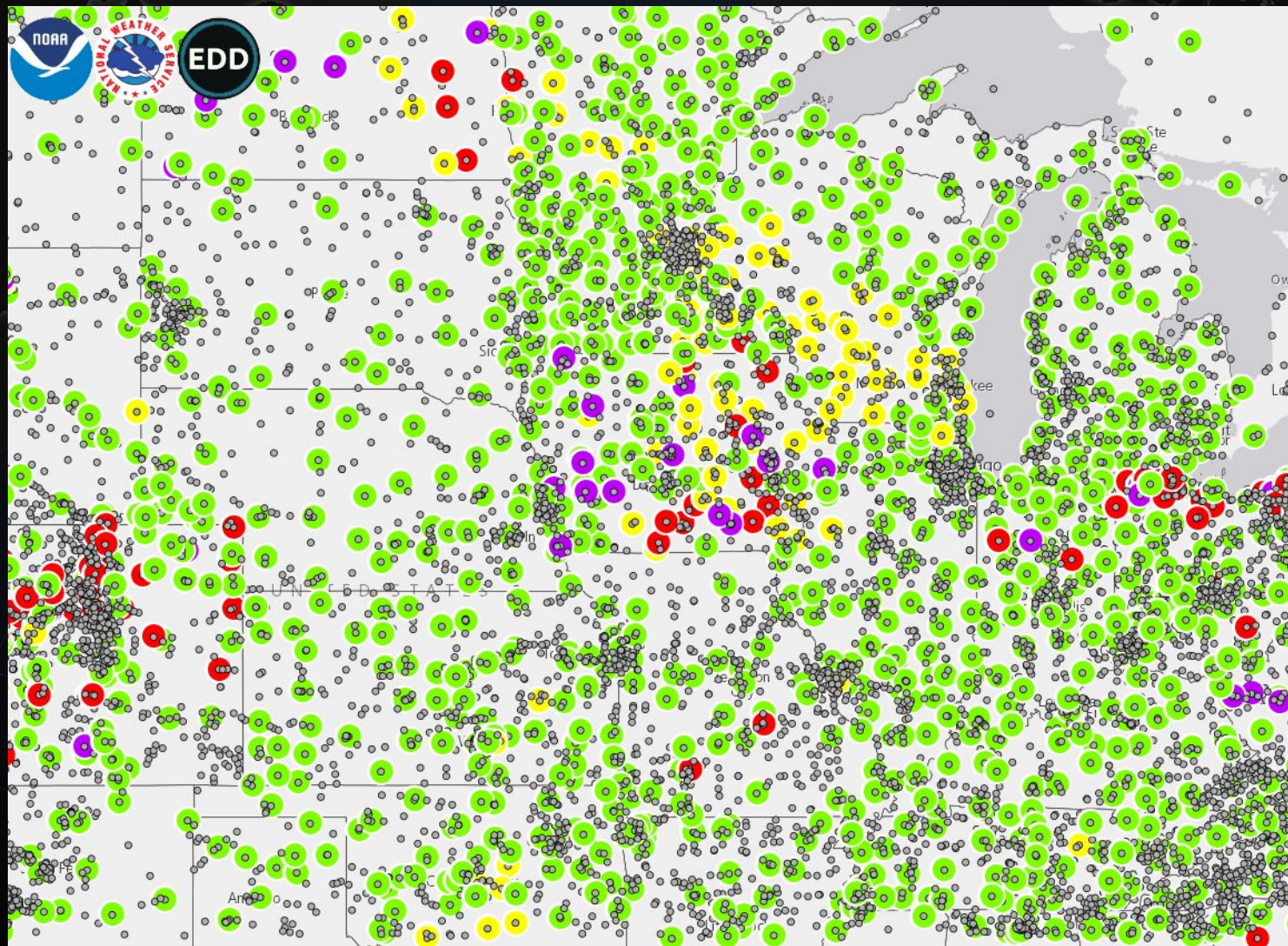


- Co-located at the Anchorage ARTCC to provide weather support directly to the FAA
- Provide in-person and recorded video briefings to all ARTCC personnel
- Issue Center Weather Advisories (CWA) and Meteorological Statements (MIS) as needed.
- Distribute and plot SIGMET, CWA, MIS in/around the ZAN airspace.





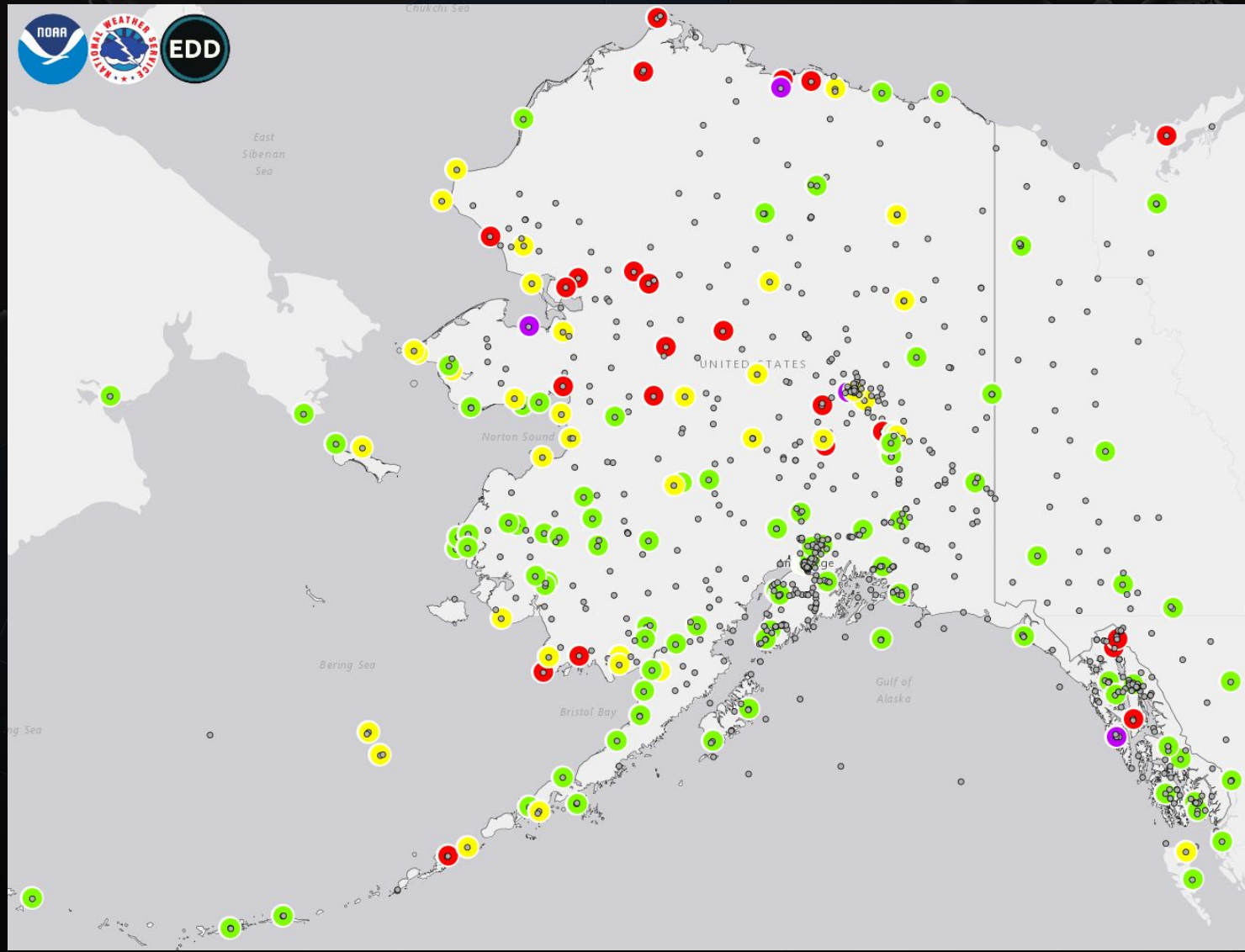
# CONUS Observational coverage

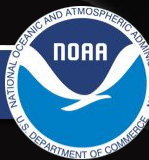




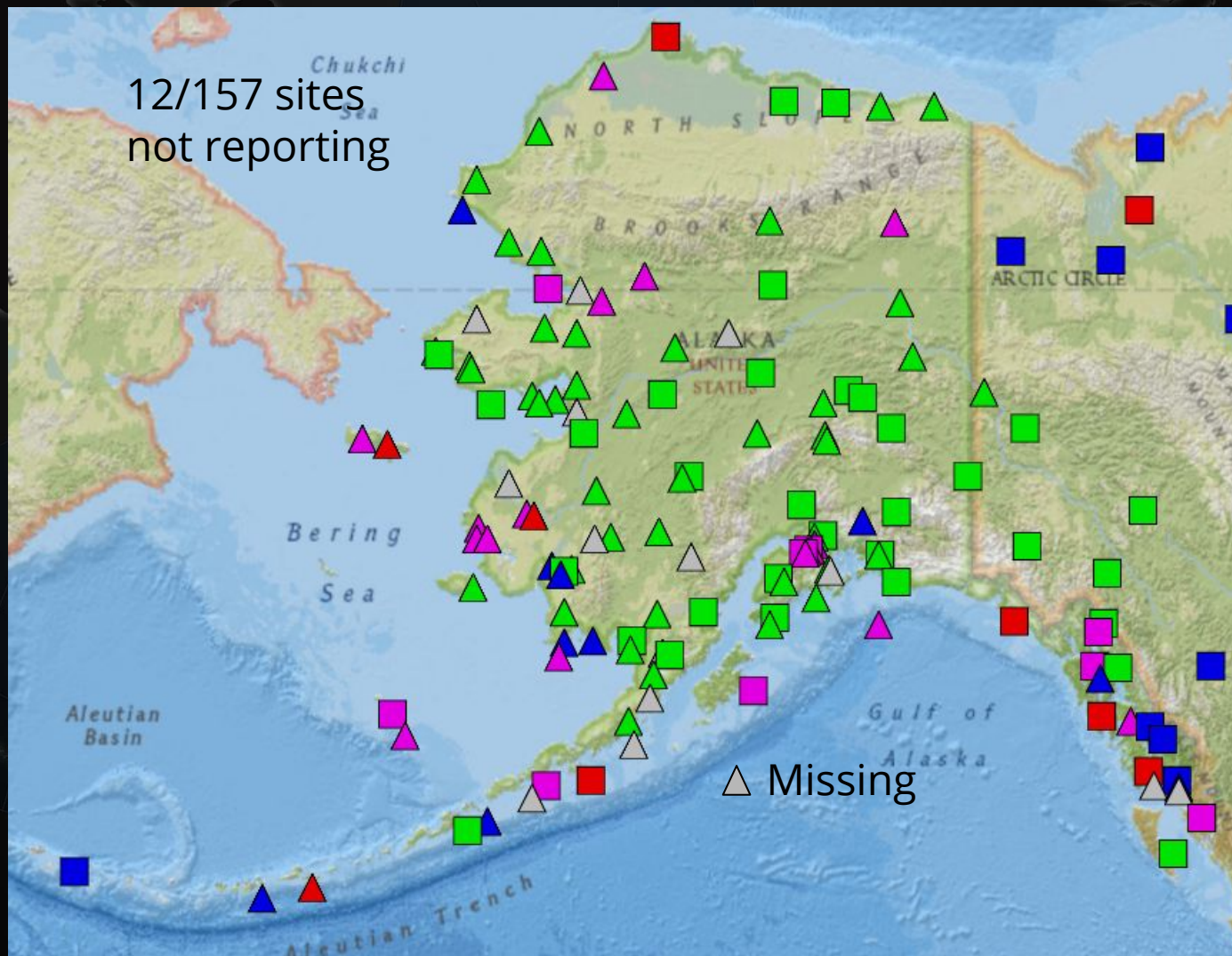


# AK observational coverage





# ASOS/AWOS reporting problems





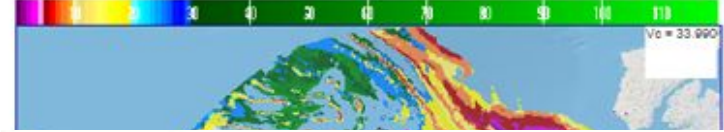


# Impacts to gridded forecast quality

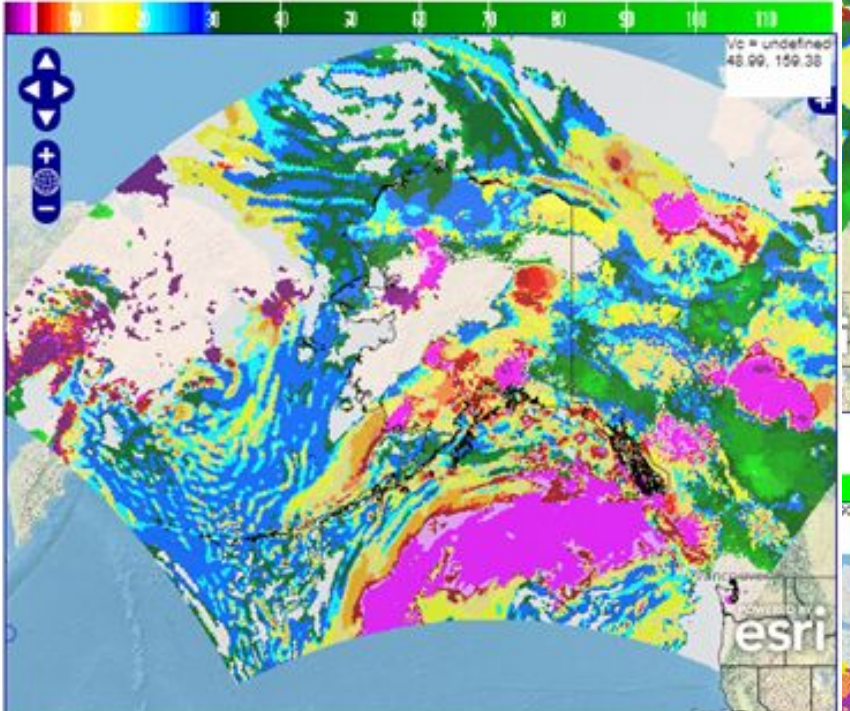
GLMP PARA 0 hr analysis 12z Sat 2019-11-02 00h Cig



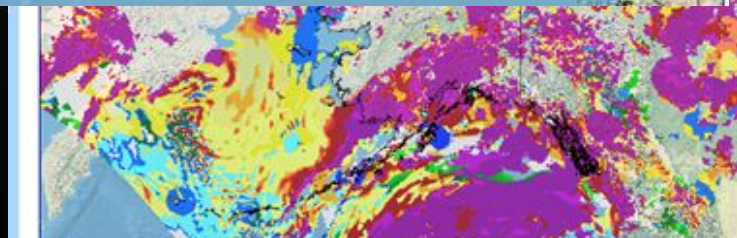
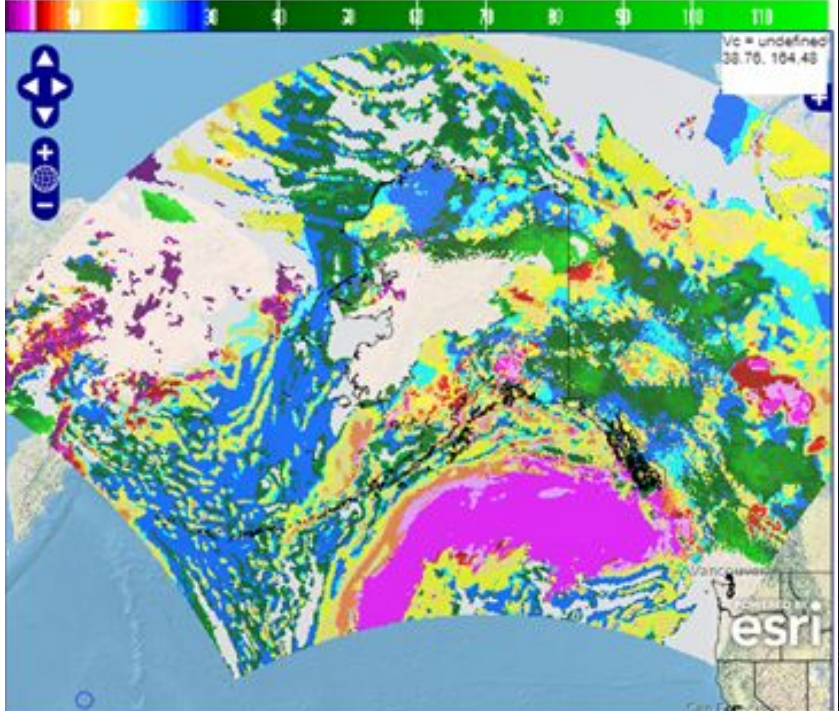
HRRR 12z Sat 2019-11-02 00h Cig



GLMP PARA 5 hr forecast 17z Sat 2019-11-02 05h Cig



GLMP PARA 10 hr forecast 22z Sat 2019-11-02 10h Cig

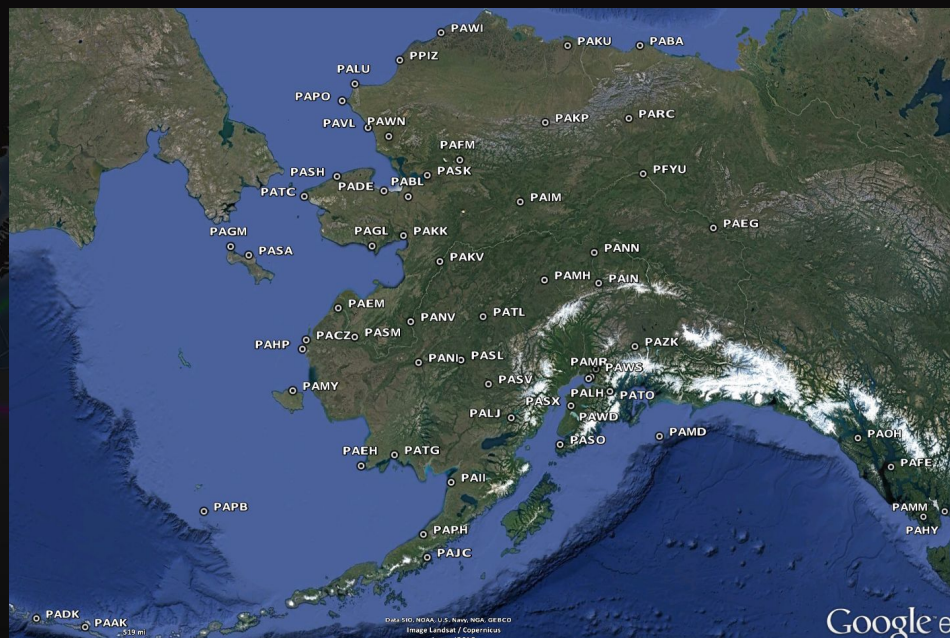






# Alaska Aviation Guidance (AAG) experiment

- Stems from 2014 FAA determination that the FA did not meet Part 121 or 135 requirements for destination or alternate airports.
    - FAA request to NWS to “provide the meteorological information necessary” to fulfill these requirements
  - Goal to provide supplemental aviation guidance to airports not serviced by a TAF
    - Intended to support go/no go decisions for VFR operations
  - No additional staffing available to increase traditional TAF service
- Completely automated plain language forecast based on NWS aviation model guidance (LAMP)
    - No NWS forecaster intervention possible
    - Currently experimenting with 61 of the 157 requested sites
- 
- A map of Alaska showing the locations of 61 experimental LAMP forecast sites. The sites are marked with orange dots and labeled with codes such as PAWI, PAKU, PABA, PALU, PPIZ, PAPO, PAVL, PAWN, PAFM, PASK, PAIM, PASH, PADE, PABL, PAEG, PATC, PAGM, PAGA, PAGL, PAKK, PAKV, PANN, PAMH, PAIN, PAHP, PACZ, PASM, PANV, PATL, PAEM, PASV, PAMR, PAWS, PAKI, PASX, PALH, PATO, PAJD, PAED, PATG, PAIJ, PAPH, PAJC, and PAPB. The map shows the state of Alaska with its various regions and the surrounding waters.







# Challenges to evolving aviation services

- Gridded Forecasts
  - Critical to modernizing aviation services into the digital world.
    - DAS, GFA, G-Airmet
  - Challenges performing verification of new datasets with limited obs.
- RTMA/URMA
  - Poor data quality for aviation elements with current obs network.
  - Poor RTMA/URMA quality impacts Gridded Forecast quality.
  - Potential improvements: VWOS, VEIA, satellite derived products
- AAG
  - Early verification is promising for short term go/no go decisions
  - How do we provide the same quality guidance at the remaining sites w/out an observation?
    - Only 61 of the 157 sites requested have an observation



# Thank You!

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