



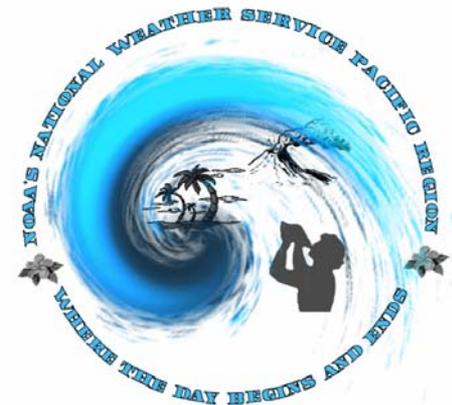
Pacific Region Aviation Mission

Tim Hendricks

Pacific Region Headquarters

Mission Statement

- Provide high quality and timely aviation weather forecasts and services in support of general, commercial and military aircraft operations in the central and western Pacific



Overview

- Weather Forecast Office (WFO) Guam
 - Aviation products
 - Aviation hazards

- WFO Honolulu
 - Aviation products
 - Aviation hazards
 - Interactive Calibration of Four Dimensions (IC4D)

WFO Guam

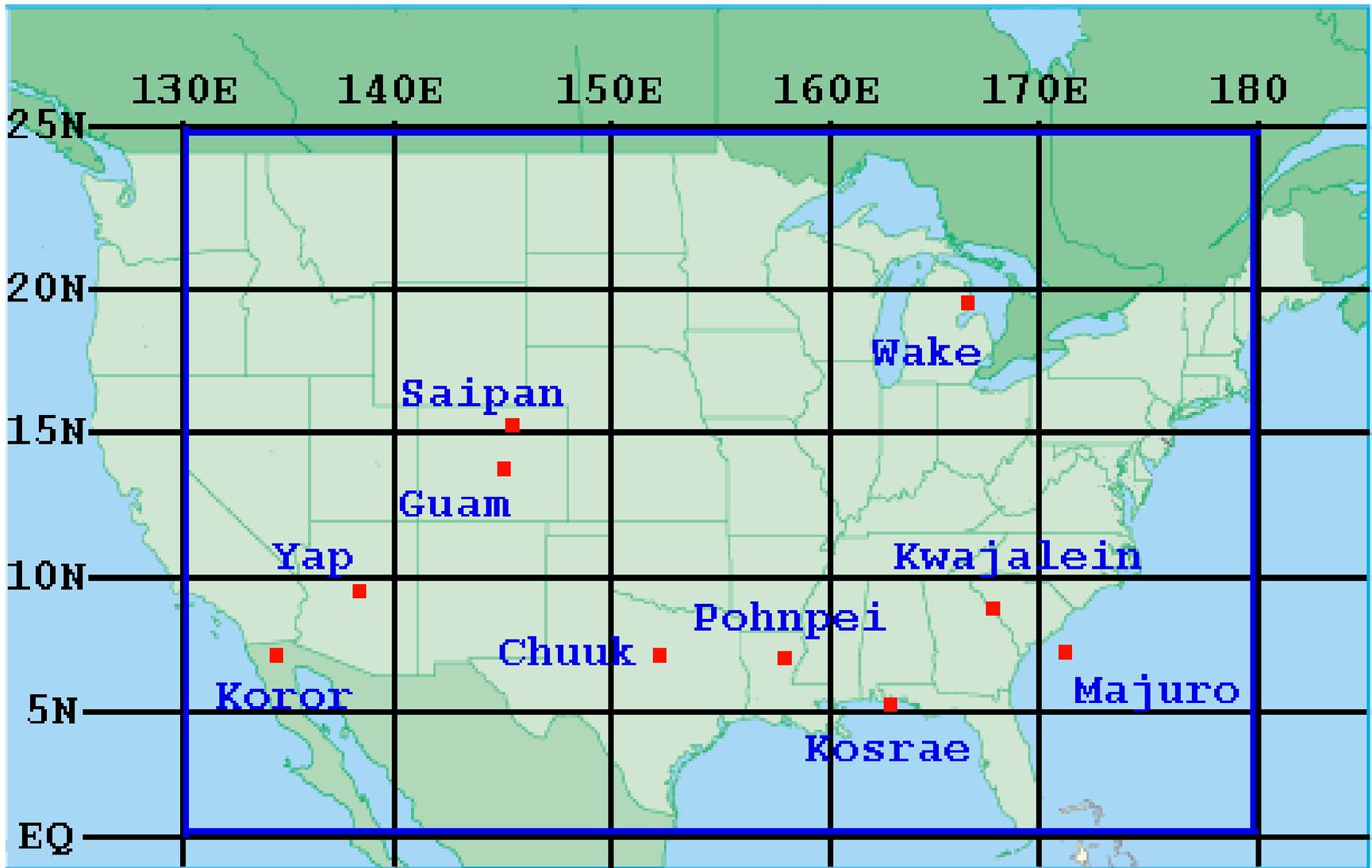


Aviation Products

- Routine
 - Terminal Aerodrome Forecasts (TAF)
 - Most sites are Supplemental Aviation Weather Reporting Stations Program (SAWRS)
- Non-Routine
 - Aviation Weather Warnings and Advisories for Guam Airport (AWW)
 - Unofficial Pilot Weather Briefings
 - DOD briefings (aircraft evac.)

TAF Locations

- PGUM - Guam USA
- PGRO - Rota, CNMI
- PGWT - Tinian, CNMI
- PGSN - Saipan, CNMI
- PTRO - Koror, Republic of Palau
- PTYA - Yap, Federated States of Micronesia
- PTKK - Chuuk, Federated States of Micronesia
- PTPN - Pohnpei, Federated States of Micronesia
- PTSA - Kosrae, Federated States of Micronesia
- PKWA - Kwajalein, Republic of the Marshall Islands
- PKMJ - Majuro, Republic of the Marshall Islands

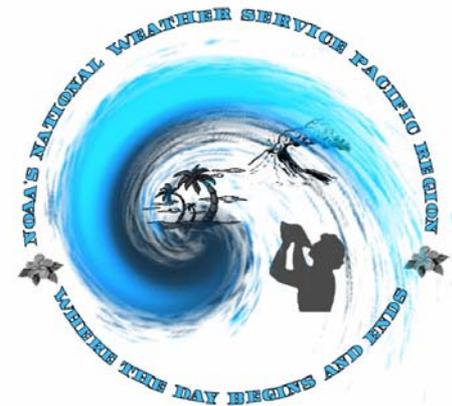


TAF Forecast Philosophies

- Try not to chase observations
- Try not to over-use TEMPO Groups
- Often use VCSH for short-duration events
- Convective weather is a special challenge
- Wind frequently varies by 30 degrees
- Large diurnal differences in weather

Continental Micronesia

- Wet runways and TEMPO conditions mean operating limitations:
 - Need more runway to stop
 - More fuel (alternates)
 - Less passengers
 - Less cargo/mail (luggage)
 - Limited mail service



High Island

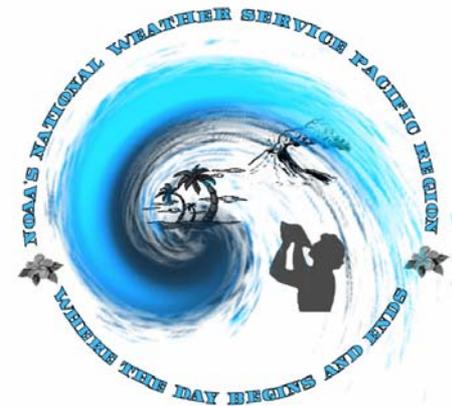


Low Island

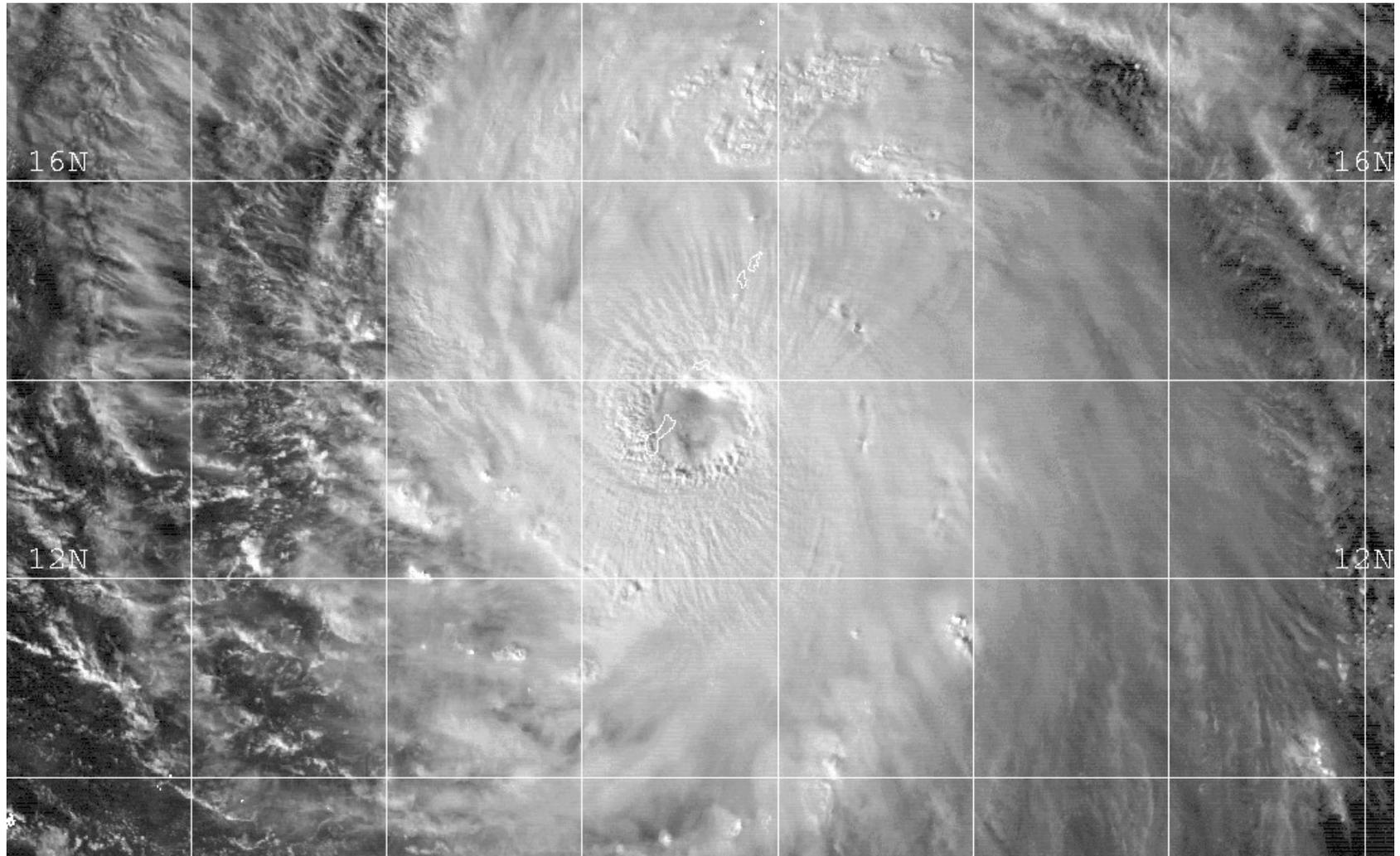


Aviation Hazards

- Tropical Cyclones (Turbulence and wind shear)
- Monsoon Surge (Prolonged episode of strong winds, low visibilities and ceilings)
- Volcanic Ashfall (Anatahan)



Tropical Cyclones

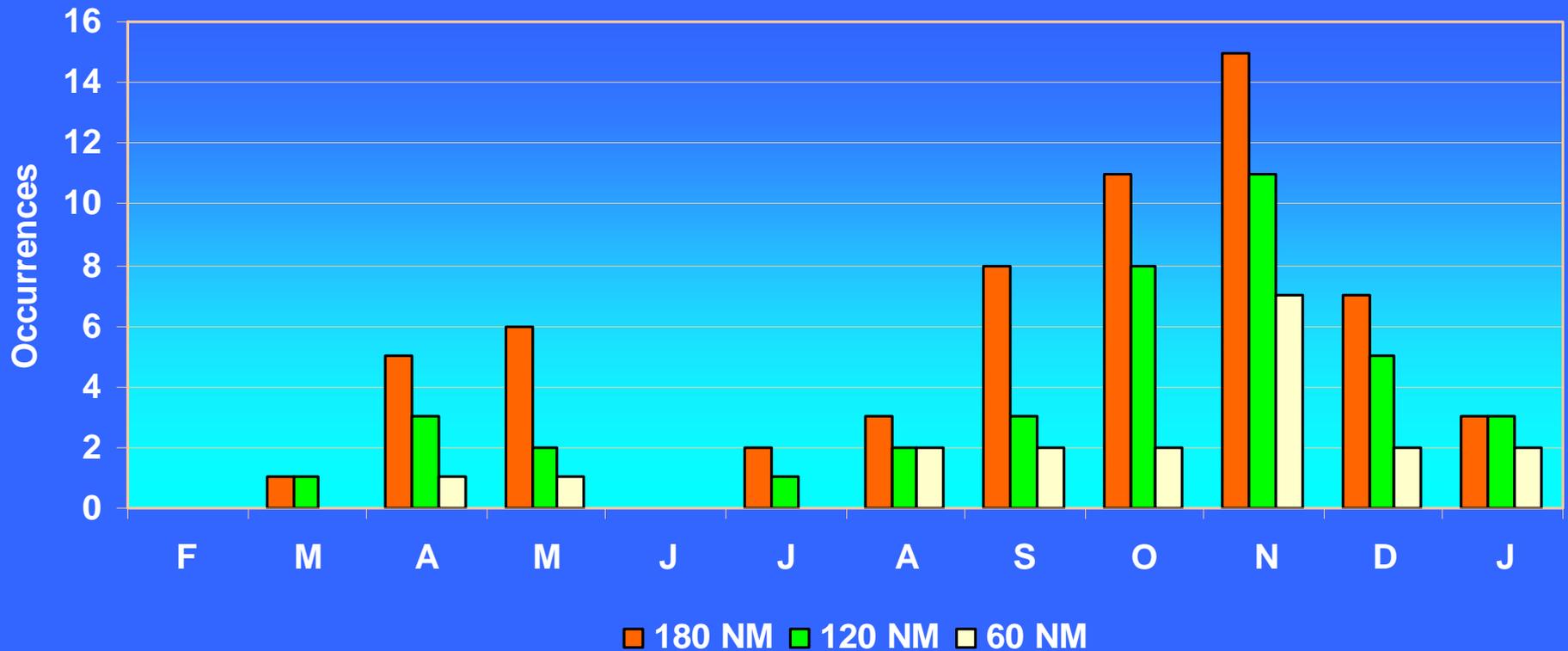


Number of Typhoons within 180, 120 and 60 Nautical Miles of Guam -by Month, 1945-1998

Within 180 NM: 61 typhoons in 54 years = 1.1 per year

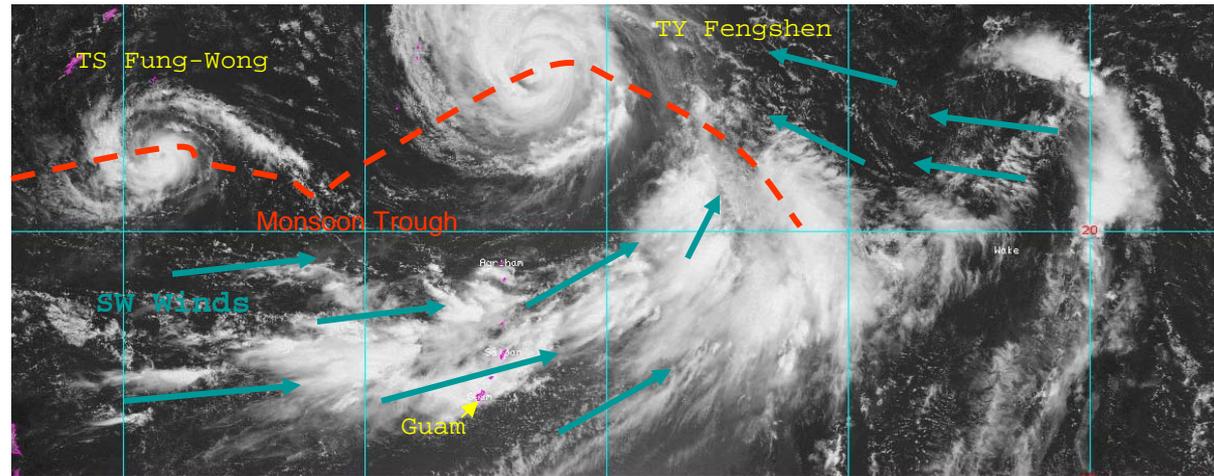
Within 120 NM: 39 typhoons in 54 years = 0.7 per year

Within 60 NM: 19 typhoons in 54 years = 0.35 per year

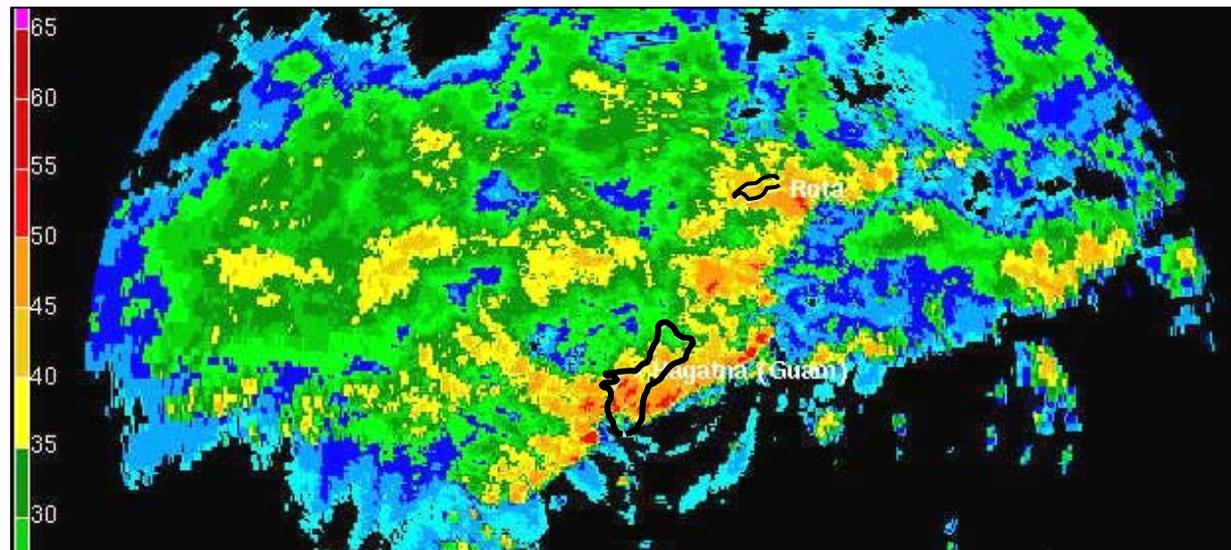


Southwest Monsoon Surges

- Occur in association with the monsoon trough or a monsoon depression
- West or southwest winds south of the trough may reach gale force at times in squalls
- May produce excessive rainfall over several days
- Widespread low ceilings at times
- May produce frequent thunderstorms
- Most common from July through November



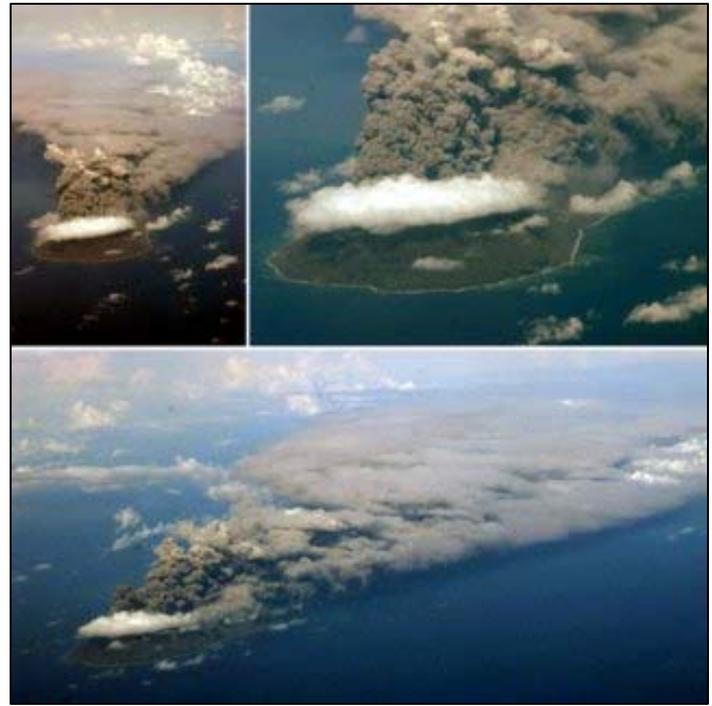
Visible Satellite Image – 23 Jul 02



Guam Doppler Radar Image – 23 Jul 02

Volcanic Ash



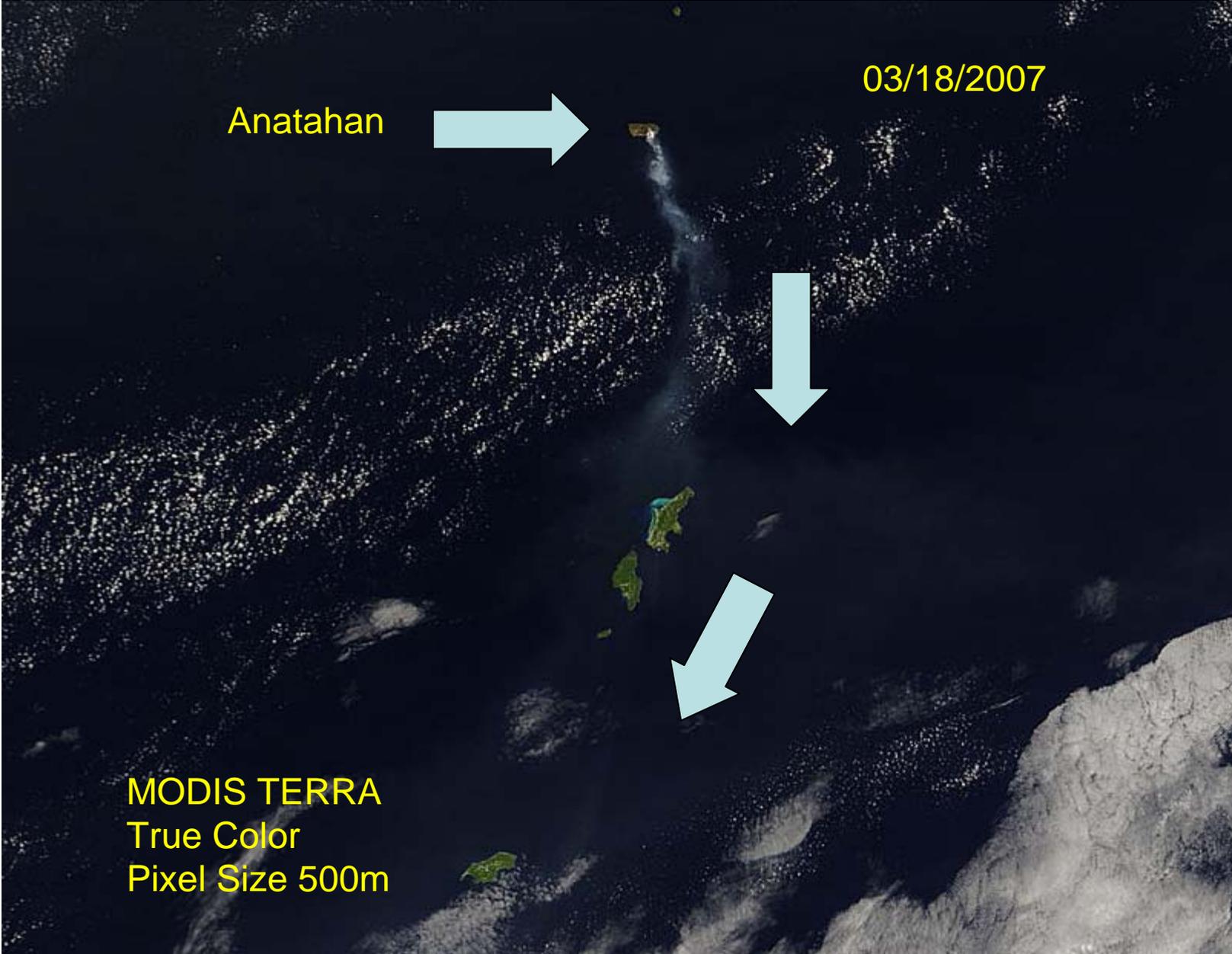


03/18/2007

Anatahan



MODIS TERRA
True Color
Pixel Size 500m



WFO Honolulu



- Manoa Campus of the University of Hawaii

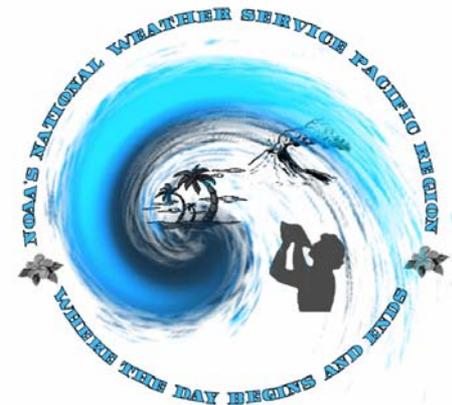


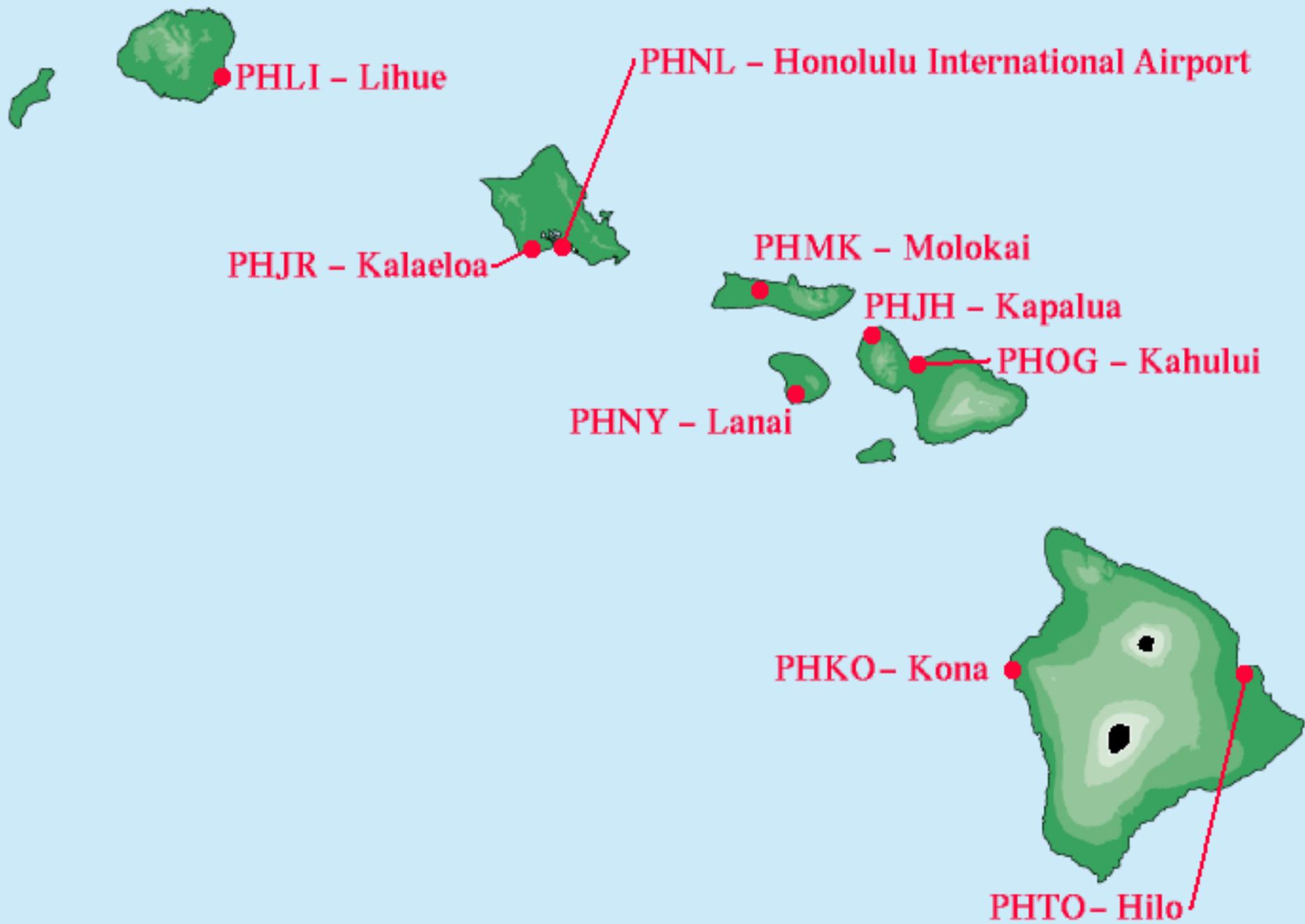
Aviation Products

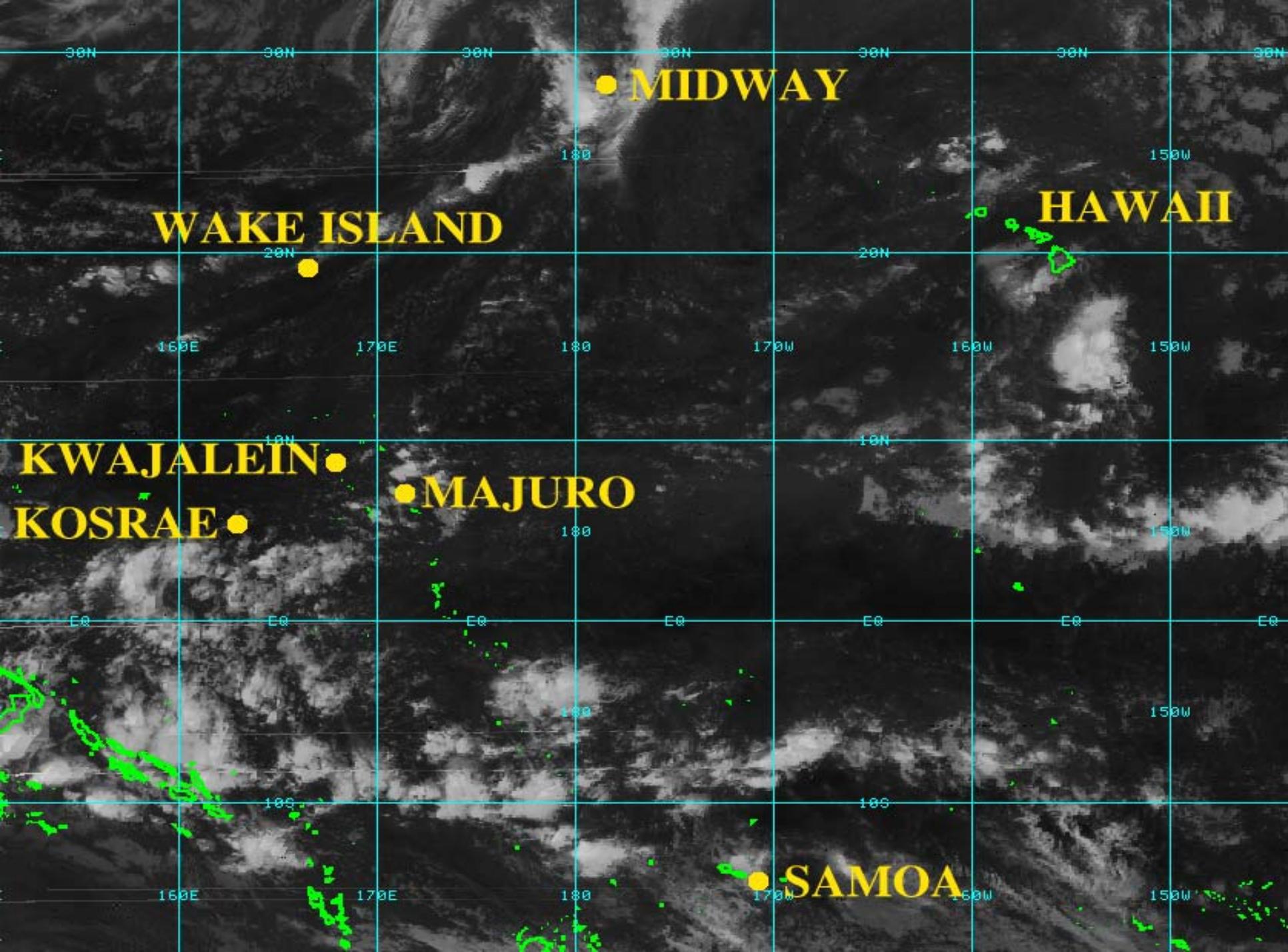
- TAFs
- Route Forecast (ROFORs)
- Area Forecast
- SIGNificant METeorological Information (SIGMET)
- AIRman's METeorological Advisory (AIRMET)
- Winds/Temps aloft Forecast*

TAF Locations

- NSTU - Pago Pago American Samoa
- PHJH - Kapalua
- PHJR - Kalaheo
- PHKO - Kona
- PHLI - Lihue
- PHMK - Molokai
- PHNL - Honolulu
- PHNY - Lanai
- PHOG - Kahului
- PHTO - Hilo
- PMDY - Midway







● **MIDWAY**

WAKE ISLAND

HAWAII

KWAJALEIN ●

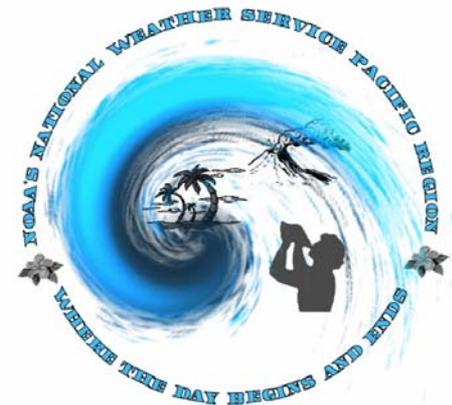
● **MAJURO**

KOSRAE ●

● **SAMOA**

ROFORs

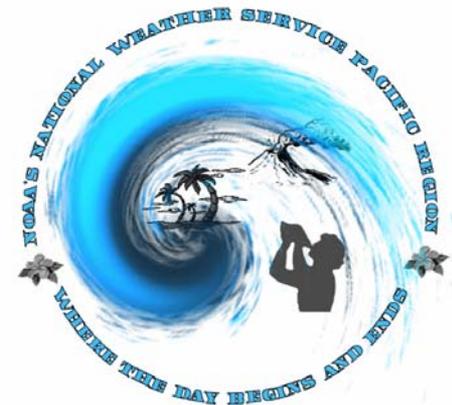
- Coded route forecasts for regularly scheduled flights that either begin or end in, or that have most of the flight path within the Honolulu Forecast Office Area of Responsibility.
- Issued several hours in advance of the scheduled departures.



ROFORs

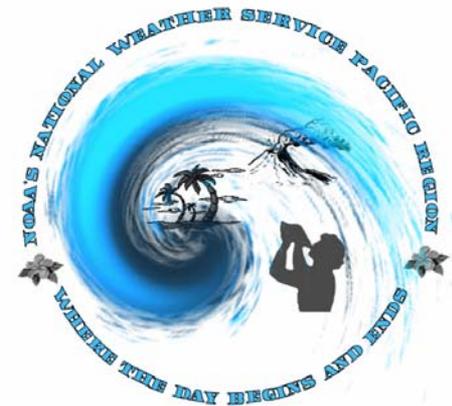
- Routine Issuance for:
 - Santa Barbara, CA to Honolulu (Daily 07/19 UTC)
 - San Francisco, CA to Honolulu (Daily 07/19 UTC)
 - Majuro to Kwajalein (Daily 19 UTC)*
 - Tarawa to Majuro (Fri 17 UTC)*

* slated for discontinuation



Area Forecasts

- Similar to a TWEB
- For Hawaii covers the main Hawaiian Island and the adjacent coastal waters out 40 nm

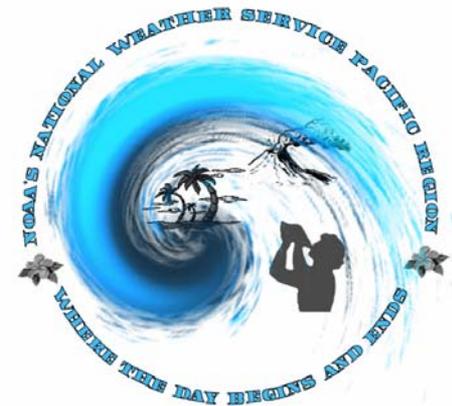


AIRMETS

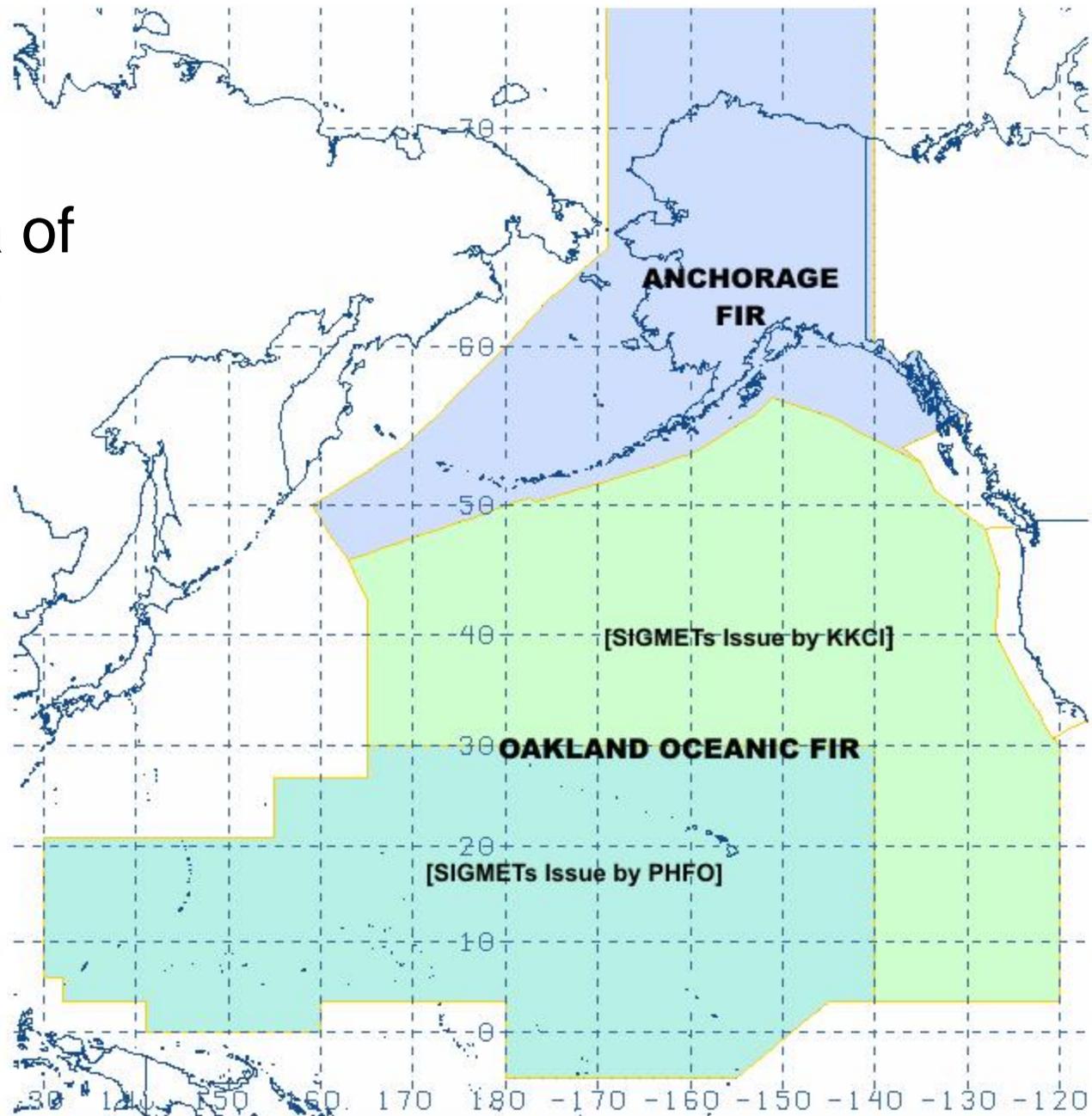
- AIRMETS will be issued as necessary for:
 - Moderate icing
 - Moderate turbulence
 - Sustained surface wind speeds of 30 knots or more
 - Ceilings less than 1000 ft and/or visibility less than 3 miles affecting more than 50 percent of an area at any one time
 - Significant areas of mountain obscuration.

SIGMETS

- SIGMETs will be issued as necessary for:
 - Thunderstorms
 - Tropical Cyclones
 - Severe squall lines
 - Severe or Clear Air turbulence
 - Heavy hail
 - Severe Icing
 - Marked mountain waves
 - Widespread sandstorm/duststorm
 - Volcanic Ash Cloud
 - Tornado

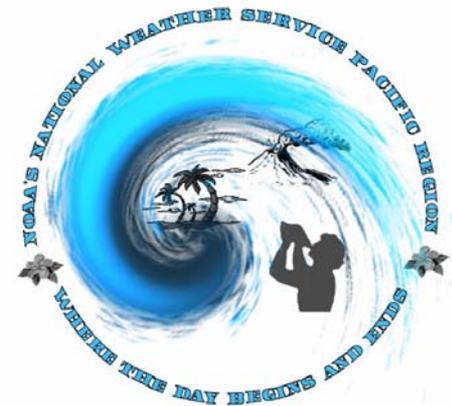


- SIGMET Area of Responsibility

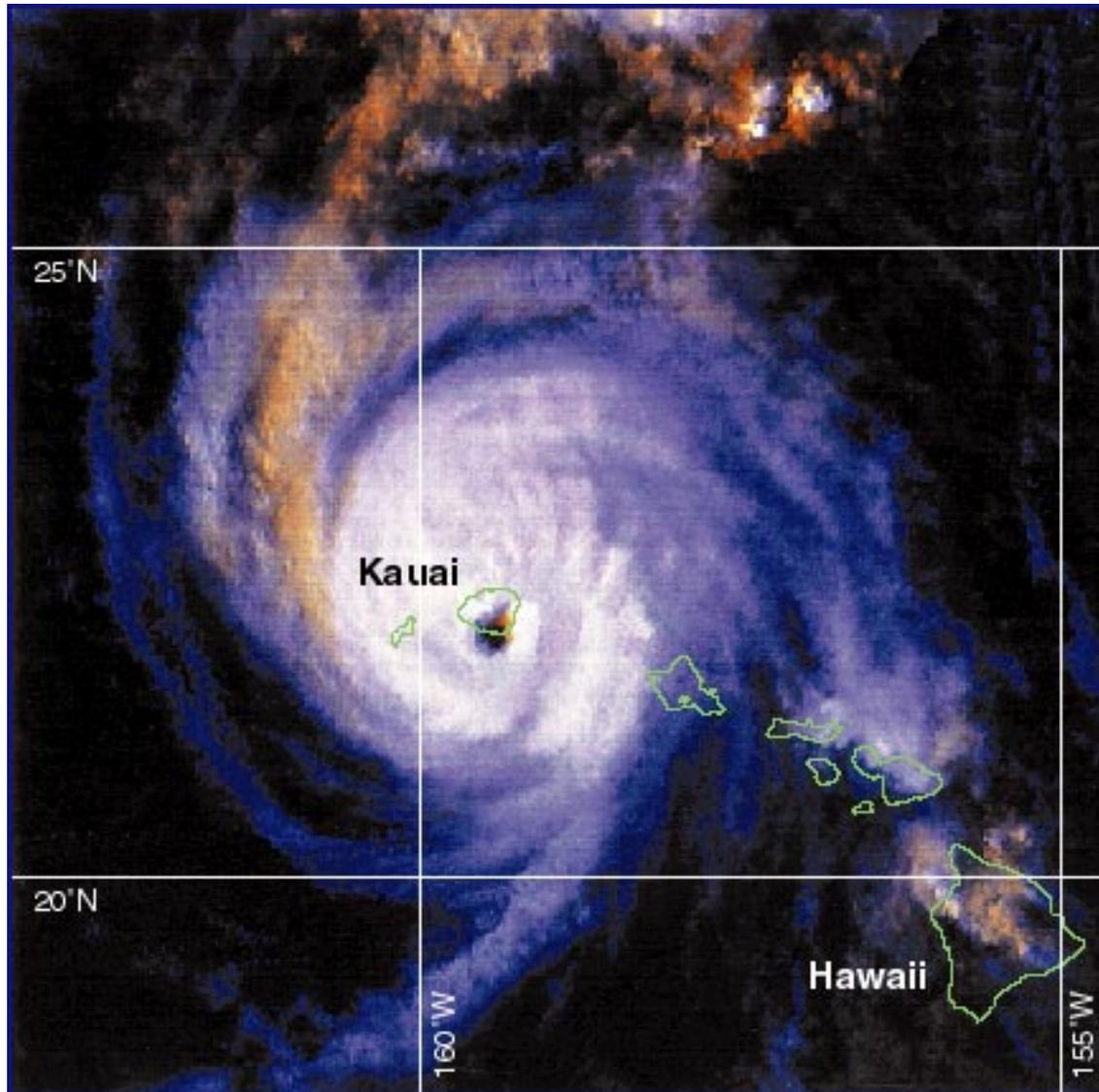


Aviation Hazards

- Hurricanes (Iniki)
- Kona Lows
- Cold Fronts/Shearlines
- Strong Trade Winds (downslope and wind shear)
- Tropical Upper Tropospheric Trough (TUTT)
- Tsunamis (HNL reef runway)
- Volcanic Ash (potential)

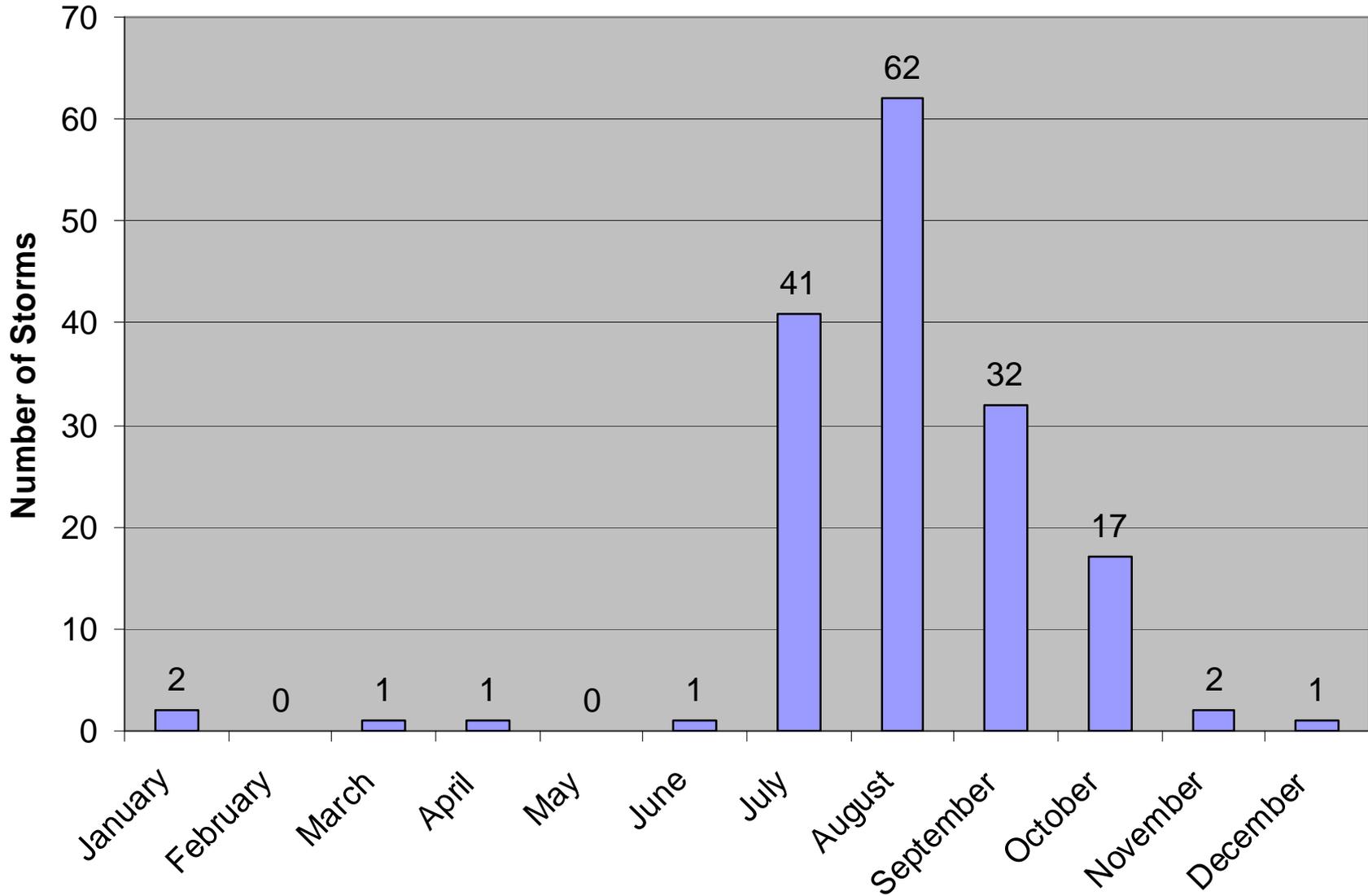


Tropical Cyclones - Hurricane Iniki, Sep 11, 1992

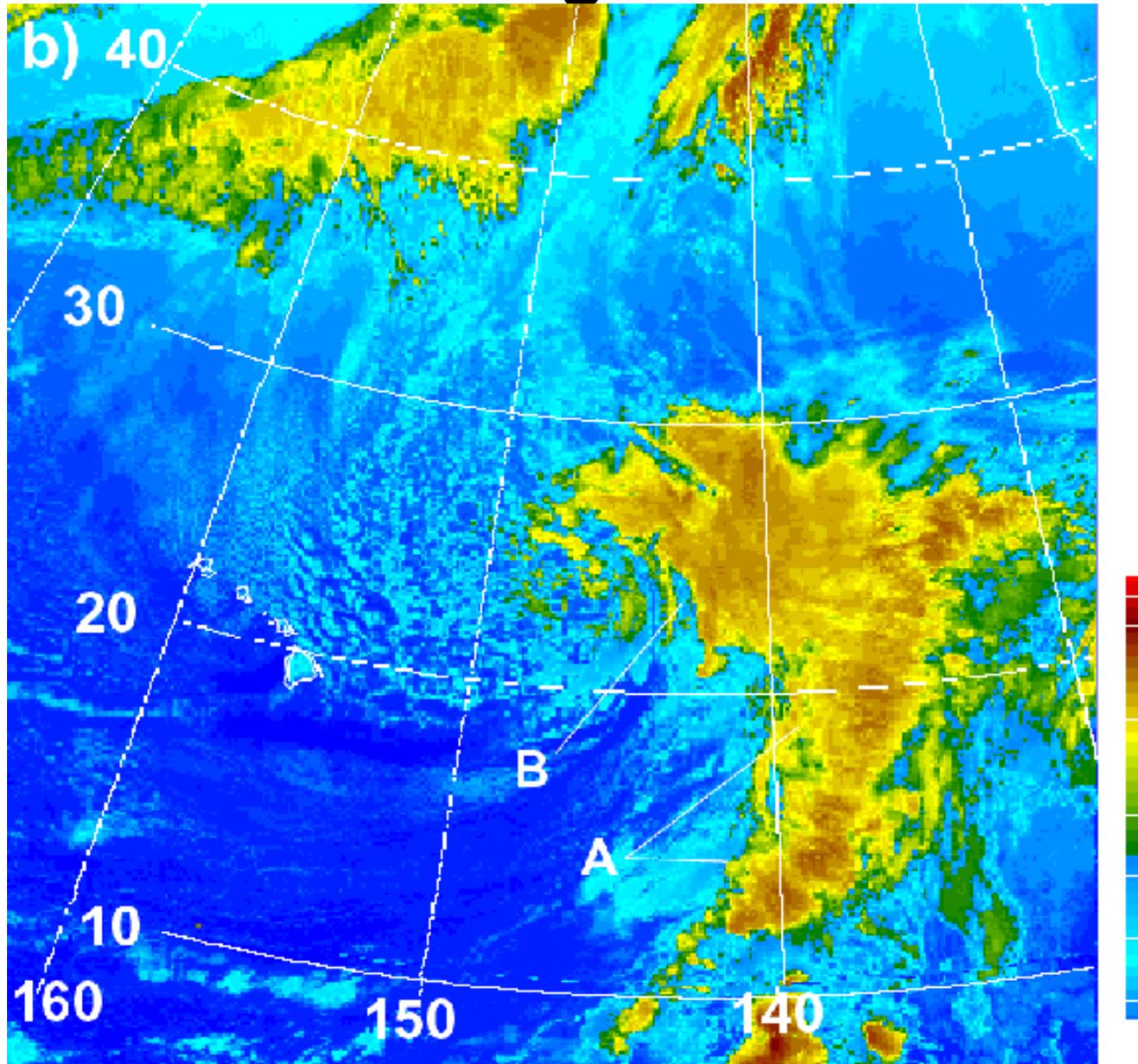


- 4 to 5 tropical cyclones (TD, TS, Hcn) annually in the Central Pacific
- Direct hits rare...but devastating
 - 3 in last 50 years
 - Dot (1959), Iwa (1982), Iniki (1992)

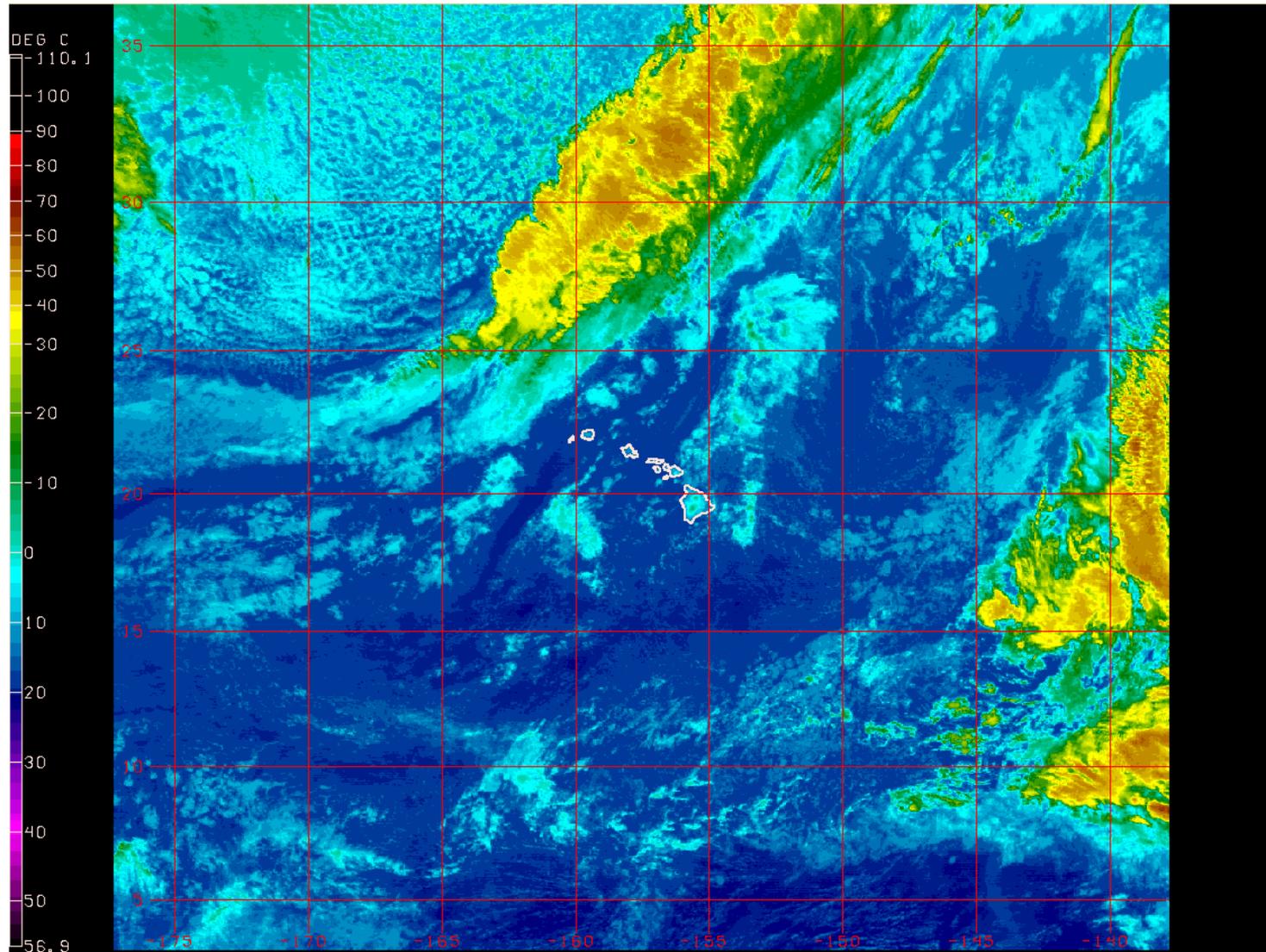
Central Pacific Tropical Cyclones 1971 - 2006



Kona Lows - Intensifying Stage IR Image



Typical Cold Front on IR Satellite Image

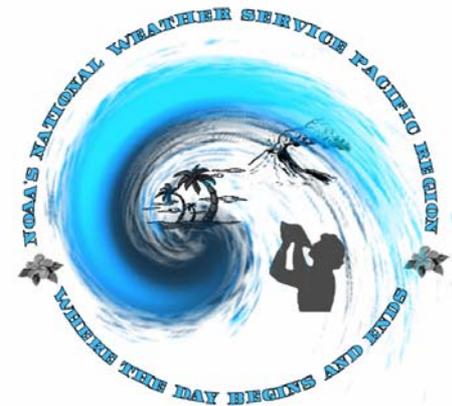


IC4D

- AAWU and WFO HFO test sites (OCONUS)
- Essentially GFE on vertical dimension steroids
- MDL support
- Potential to develop a common aviation database populated by models, adjusted for local expertise by WFOs, and used by AWC and CWSUs to create the NWS-provided common aviation weather picture

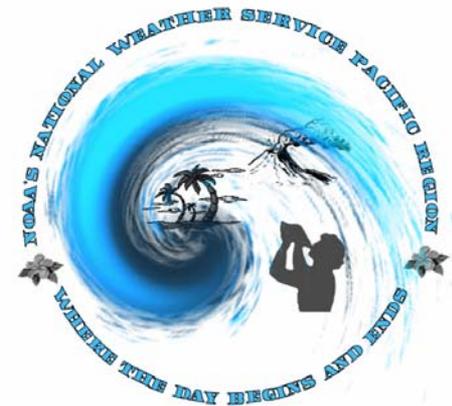
IC4D – Maps/Overlays

- Pilot Reports (color coded by severity)
 - Icing, Turbulence, LLWS, Weather Reports, Flight Level
- ACARS data
- METAR Data (color coded by category)
- PIREP Rollover
- RAOB Display
- Toggle Layer Values



IC4D – WAFS Parameters

- Clear Air Turbulence (Ellrod Index)
- In-Cloud Turbulence (Brunt-Väisälä)
- Icing Potential (NCAR Forecast Icing Potential)
- Convection (GFS convective precipitation field)



Thank You

