

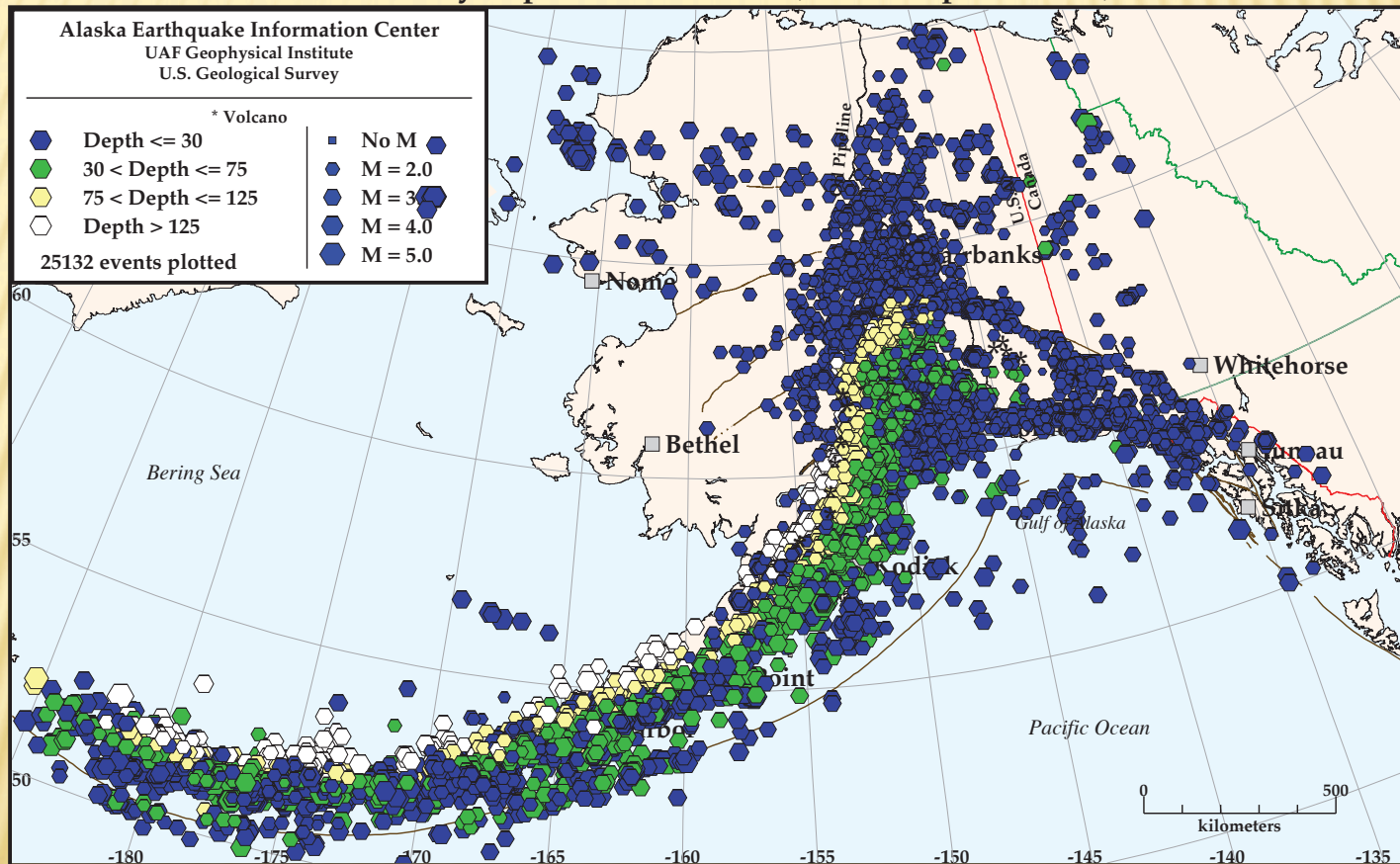


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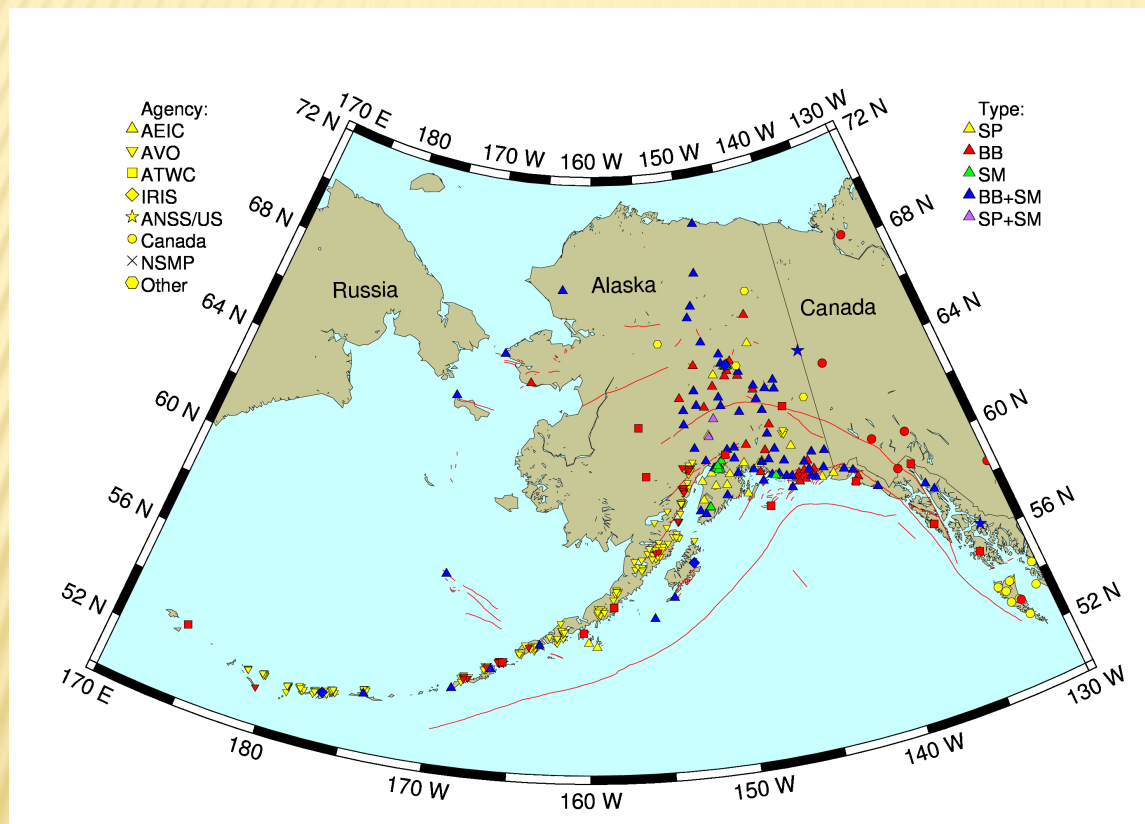
AK NETWORK

RECENT SEISMICITY

AEIC Seismicity Report for October 01, 2011 - September 22, 2012



INTEGRATED ALASKA REGIONAL NETWORK



- ~500 stations
- Integrated network:
 - AEIC ~200 sites
 - Alaska Volcano Observatory ~200 sites
 - Alaska Tsunami Warning Center 15 sites
 - 3 GSN stations
 - 4 TA stations (NEW)
 - 2 ANSS backbone station
- 2/3 of stations are digital broadband, ~1/3 of stations are short period analog (only a handful of these belongs to AEIC)

DATALOGGERS/SENSORS/TELEMETRY

- ✘ Dataloggers: 70 Q330, 37 Q330S, ~20 basalts, ~20 DM24, ~20 Altus
- ✘ Sensors BB: STS2 g1-3, CMG3T, CMG3eps, CMG40T, Trillium 120, 240, 120PH, Metrozet 200-PBB,
- ✘ Sensors SM: CMG5T, Episensor, Titan
- ✘ Telemetry: Primarily radios from field sites (FreeWaves), 3 VSATS, a dozen phone lines, internet
- ✘ Lab hardware – replaced most Suns with MacPro's 2-3 years ago

BUDGET AND STAFFING

- ✘ Currently staff of 10, will be hiring at least 3 new positions this fall/winter
- ✘ Weekly staff meeting to discuss operations, etc.
- ✘ Funding from from largest to smallest (salaries + field work)
 - State funding
 - USGS through cooperative agreement for operation of sites in southern Alaska
 - NOAA for operation of 22 sites, located all across the state
 - Alyeska Pipeline to operate 11 stations along the pipeline corridor
 - Alaska Energy Commission for 4 sites for monitoring of future hydro-electric dam
 - Chugach Electric for 3 sites in Kenai to monitor Bradley dam
 - State Emergency Services to provide computer displays of real-time and reviewed earthquake maps at half dozen emergency offices across the state
 - Have other funding not related to network operations

STAKEHOLDERS

- ✘ ANSS – authoritative for earthquake reporting in mainland Alaska, also report for the Aleutians, but not as authoritative agency. Report real-time and reviewed locations/magnitudes, produce ShakeMaps.
- ✘ Alyeska Pipeline Service Company – report real-time and reviewed earthquakes in the pipeline corridor, monitor ground motions at the pipeline sites, produce custom ShakeMaps
- ✘ NOAA – exporting real-time waveform data to ATWC
- ✘ Emergency Services – real-time and reviewed earthquake information
- ✘ Future work: AEC – monitoring of induced seismicity at Susitna-Wtana dam site

PRODUCTS

- ✘ Real-time and reviewed earthquake locations/magnitudes, according to ANSS performance requirements
- ✘ Real-time ShakeMaps
- ✘ Reviewed moment tensors and 1st motion focal mechanisms (only in house, not submitted anywhere)
- ✘ Real-time and archived waveforms

EARTHQUAKE PROCESSING FLOW

- ✘ Real-time events are written into a so called summary database, 2 weeks deep. Currently using *USGSimport* to incorporate external hypocentral data.
- ✘ Earthquake alarms and mislocated events are reviewed by seismologist-on-duty and folded into the same summary db.
- ✘ At the end of the UTC day earthquake parametric data is split from summary db into daily db.
- ✘ Analysts “check out” day for processing by copying daily db into their own processing directory.
- ✘ Analyst reviewed day is “checked in” and makes its way into the summary db.
- ✘ QC seismologist checks out analyst processed day, reviews selected events and checks it back in, again it goes into the summary db.
- ✘ Weekly seismicity reports are issued every week, posted on website.
- ✘ Monthly seismicity reports issued monthly, posted on website.
- ✘ Monthly earthquake catalogs are final product. PDE is the only external catalog we incorporate into post-processed catalog. Posted on website and all parametric data is merged into so called *Total* db (currently ~400K events, 1899-present).
- ✘ Event types:
 - G – glacial quakes
 - Q – quarry blasts
 - a, b – volcano a and b types

WAVEFORM ARCHIVE AND DATA EXPORTS

- ✘ Real-time waveform archive holds only 2 days. The rest of waveforms archive is in daily wfdisc tables.
- ✘ Event segmented waveform archive also exists. Will probably phase it out by the end of this year.
- ✘ Continuous wf archive exists from 2002 to present. Currently working on reading older data from tapes onto hard drives.
- ✘ All broadband data is being sent to IRIS DMC through orb2orb (minus pipeline stations), CRESTNET stations are being sent to ATWC through orb2ew, some stations are being shared with AVO through orb2ew.
- ✘ Some strong motion data is being sent to National Strong Motion project and engineering department at UAA.

SHORT TERM NEEDS/CHALLENGES

- ✘ Mapping capabilities
- ✘ QuakeML transition
- ✘ Need to improve our website
- ✘ Would like user friendly waveforms cross-correlation tools. Can do it now but have to go through Matlab tools.

5-YEAR VISION PLAN

- ✘ TA will be coming to Alaska in 2014. Need to work on a plan for adopting TA stations.
- ✘ Continue working on robustness of our field stations (telemetry, power).
- ✘ Would like to work on Earthquake Early Warning Systems, better real-time earthquake source characterization (e.g. real-time GPS displacements+seismic).