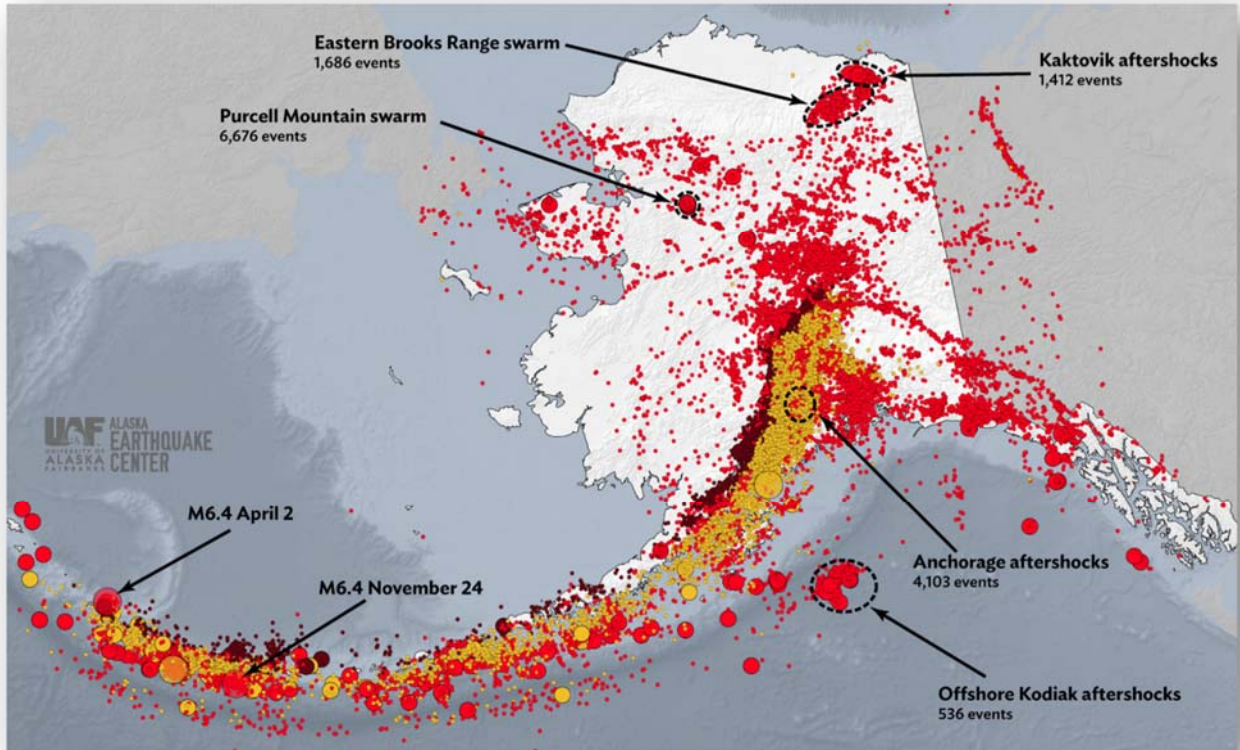


ASHSC Alaska Seismic Hazards Safety Commission



2019 ANNUAL REPORT

TO THE GOVERNOR AND STATE LEGISLATURE

EXECUTIVE SUMMARY

2019 was a year of earthquake recovery and reassessment for Alaska.

Seismically, the year was relatively quiet with no major earthquakes impacting the state. The Alaska Earthquake Center recorded 50,289 events during 2019 with the largest being a pair of M6.4 events in the Aleutian Islands. Much of this activity was related to ongoing aftershock sequences following notable 2018 earthquakes along with a few persistent earthquake swarms in the Purcell Mountains and the Brooks Range.

The number of recorded events is higher than in previous years due to the continued presence of the USArray network. The additional seismic data provided by this network has allowed detection of events in previously unmonitored regions as well as smaller magnitude earthquakes.

The impact of the 2018 M7.1 Anchorage Earthquake has been long lasting, as the community continues to recover to this day. The Associated General Contractors of Alaska estimates that over \$200 million in government construction spending went towards earthquake-recovery projects. This had a marked impact on job growth in the construction industry and aided the state's overall economic recovery.

This year also served as a time of reassessment as organizations reviewed the performance of their earthquake response programs and looked for ways to improve. Lessons were shared amongst the community at Commission meetings and at the September Anchorage Earthquake symposium.

Finally, there continues to be national recognition of the resilient Alaskan community that pulled together in the hours and days after the Anchorage Earthquake. Anecdotes range from neighbors helping neighbors to contractors working alongside the DOT to complete rapid road repairs. The fact that we experienced no looting after the earthquake is beyond belief to emergency managers in the lower 48. The Alaskan can-do spirit has shown itself to still be alive and strong in our community.

In 2019 this Commission took action on several fronts:

- Supported and took part in the 3-day Anchorage Earthquake Symposium held in September 2019
- Brought together multiple response agencies to provide briefings on response to 2018 Anchorage Earthquake
- Coordinated with EERI to compare results of FEMA Rapid Visual Screening reports with structural performance during the 2018 Anchorage Earthquake
- Reviewed state of building code adoption and enforcement in Alaska
- Supported the Alaska Earthquake Center's request for funding to adopt the USArray seismic stations
- Established a working group for coordinating post-earthquake safety assessment volunteers
- Sponsored training for earthquake response and tsunami-resistant building design
- Passed legislative audit review of commission activities

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- Published a lesson's learned document on the anniversary of the 2018 Anchorage Earthquake identifying areas for improvement¹
 - Commission strategic plan updated.

The Commission is available and would welcome the opportunity to discuss any issues within our purview.

Sterling Strait, Chair
Laura W. Kelly, Vice-Chair

Cover Photos: 2019 Alaska Seismic Activity map from Alaska Earthquake Center, Anchorage Earthquake Symposium, photo by S. Strait, USArray seismic station N15K near Bethel, photo by Alaska Earthquake Center

¹ http://seismic.alaska.gov/download/ashsc_meetings_minutes/sig_eq_2018_Anchorage_final_update_120619.pdf

Abbreviations used in this report for Federal, Alaska and Other entities:

AEC	Alaska Earthquake Center
AELS	Architects, Engineers, and Land Surveyors [<i>Alaska State Board of</i>]
ASHSC	Alaska Seismic Hazards Safety Commission
DEED	Department of Education & Early Development
DFLS	Division of Fire and Life Safety
DGGS	Division of Geological & Geophysical Surveys
DHS&EM	Division of Homeland Security & Emergency Management
DNR	Department of Natural Resources
DOT&PF	Department of Transportation and Public Facilities
FEMA	Federal Emergency Management Agency
FNSB	Fairbanks North Star Borough
NEHRP	National Earthquake Hazard Reduction Program
UAA	University of Alaska Anchorage
UAF	University of Alaska Fairbanks
USCG	U.S. Coast Guard
USGS	U.S. Geological Survey

**ALASKA SEISMIC HAZARDS SAFETY COMMISSION
ANNUAL REPORT TO THE GOVERNOR
& STATE LEGISLATURE FOR 2019**

INTRODUCTION

This report² summarizes the Alaska Seismic Hazards Safety Commission's business, activities, and accomplishments in 2019 as related to its statutory powers and duties (AS 44.37.067) on behalf of the Governor, Legislature, local governments, and the public and private sectors, which include:

- *Recommending goals and priorities for mitigating seismic hazards (e.g. strong ground shaking, landslide, avalanche, liquefaction, tsunami inundation, fault displacement, and subsidence);*
- *Recommending policies including needed research, mapping, and monitoring programs;*
- *Reviewing the practices for recovery and reconstruction after a major earthquake and to recommend improvements to mitigate losses from similar future events; and,*
- *Gathering, analyzing, and disseminating information of general interest on seismic hazard mitigation to reduce the state's vulnerability to earthquakes.*

Alaska has more earthquakes than any other region of the United States and is one of the most seismically active areas of the world. The AEC recorded 50,289 events during 2019 with the largest being a pair of M6.4 events in the Aleutian Islands. Much of this activity was tied to continuing aftershocks resulting from 2018 earthquakes along with a few persistent earthquake swarms in the Purcell Mountains and the Brooks Range.

These events demonstrate the value of a community built with seismic safety in mind. The next big earthquake and potential tsunami could be right around the corner and we must continue to improve our seismic safety. The risks to public safety and infrastructure from future events can be greatly reduced through proper planning, design, construction, and continuing education and outreach.

COMMISSION BUSINESS IN 2019

The following summarizes the ASHSC's business conducted in 2019, including membership, meetings, ethics act, and finances; with administrative support provided by the Alaska Department of Natural Resources (DNR), Division of Geological & Geophysical Survey (DGGS) (e.g. meeting logistics, budget, travel, website, etc.).

² *The Commission's documents (e.g. annual reports, meeting agenda and minutes, strategic and operating plans, policy recommendations and white papers, etc.) are available on our website www.seismic.alaska.gov.*

MEMBERSHIP

The ASHSC membership represents a broad cross-section of Alaskan professions which allows for a unique perspective on seismic hazards. We have representatives from the scientific sector who study earthquake risks, engineers who design our infrastructure to survive earthquakes, government representatives who respond to earthquake disasters, and an insurance rep who ensures our financial security following an earthquake.

TABLE 1: COMMISSION MEMBERSHIP IN 2019

COMMISSIONER / OCCUPATION / RESIDENCE	REPRESENTATION
De Anne Stevens † Geologist, DGGS; Fairbanks	Alaska Department of Natural Resources
Barrett Salisbury Ph.D. § Geologist, DGGS; Fairbanks	Alaska Department of Natural Resources
Natalia Ruppert, Ph.D. Seismologist, UAF; Fairbanks	University of Alaska
Dan Belanger DMVA, DHS&EM; Anchorage	Alaska Department of Military & Veterans Affairs
Laura W. Kelly, P.E. Civil Engineer, USCG; Juneau	Federal Agency
Edward Athey Fire Chief, City of Seward	Local Government
Jennifer Shockley † Deputy Chief, Unalaska Public Safety	Local Government
David Gibbs Director Emergency Services, FNSB; Fairbanks	Local Government
Kelsey Trimmer § Mat-Su School Board; Wasilla	Local Government
Mike Devine § State Farm; Wasilla	Insurance Industry
Garret Gladsjo Engineering Consultant, Juneau	Public/Restricted
Robert L. Scher, P.E. † Geotechnical Engineer, Consultant; Anchorage	Public/Restricted
Dan Neuffer, PE § Geotechnical Engineer, Palmer	Public/Restricted
Sterling Strait Structural Engineer, Alyeska Pipeline; Anchorage	Public/Restricted

† Resigned during 2019

§ Appointed in 2019

MEETINGS

The ASHSC conducted six public meetings in 2019, including four by teleconference (January 1, March 3, July 7 and December 12) and two in-person meetings in Anchorage (May 16 – 17 and September 9). No emergency meetings were held.

ETHICS ACT (AS 39.52)

The ASHSC submitted quarterly ethics reports to the Department of Law in 2019, with no written determinations, requests for determinations, or suspected potential violations.

FINANCES

The ASHSC's expenditures in 2019 (FY18) totaled \$6,054 out of an annual budget of \$10,000.

Our funds were used to support travel and expenses for attending commission meetings along with sponsorship of community training for earthquake response and tsunami engineering.

ACTIVITIES & ACCOMPLISHMENTS IN 2019

This section summarizes the ASHSC's activities and accomplishments in 2019. While these items generally involved the ASHSC as a whole, most were coordinated or implemented by informal working groups tapping the Commissioners with the most relevant expertise.

- The Commission supported and took part in the 3-day Anchorage Earthquake Symposium³ which looked back on the 2018 Anchorage Earthquake. This event was held at the Anchorage Hotel Captain Cook and was attended by over 100 experts from Alaska and throughout the country. Commissioner Strait was a part the event planning committee and worked to ensure local voices were included in the presentations. Commissioners Belanger, Kelly, Devine, and Ruppert presented at the symposium on their respective areas of expertise.
- During a 2-day in-person Commission meeting in May of 2019, multiple briefings were given by response agencies and stakeholder groups to discuss their efforts following the 2018 Anchorage Earthquake. These included Alaska DGGs, AEC, Municipality of Anchorage Building Safety and Geotechnical Advisory Commission, UAA College of Engineering, Alaska DOT&PF, and the Alaska DHS&EM. Copies of all presentations can be found on the Commission website.
- Commissioners Gladsjo and Strait reviewed the current state of building code adoption and enforcement in Alaska. This effort was to study impacts from the 2018 Anchorage Earthquake that identified gaps in construction practices with regard to seismic design requirements.
- Policy recommendation PR2019-01⁴ was issued in support of the efforts by the Alaska Earthquake Center to adopt existing EarthScope seismic monitoring stations into the state's permanent network.

³ <https://earthquake.alaska.edu/sites/all/meetingPage/html/meeting.html>

⁴ https://seismic.alaska.gov/download/ashsc_meetings_minutes/pr_2019-1_enhanced_seismic_monitoring_in_alaska.pdf

- The Commission established a working group for coordinating post-earthquake safety assessment volunteer efforts with the state emergency management team. Representatives from AK DHS&EM were brought together with members of Alaskan professional architecture and engineering organizations with the goal of establishing an official relationship. In addition, Commissioner Strait coordinated a presentation by Mr. Steven Bibby with the British Columbia Housing Authority on their approach to post-disaster building safety assessment.
- The Commission sponsored training for local architects and engineers on how to complete post-earthquake building safety assessments.
- The Commission worked with the Structural Engineering Association of Alaska to sponsor training and building code requirements for construction in tsunami zones.
- The Commission underwent a legislative audit⁵ in preparation for the upcoming Commission sunset date of June 2020. The audit found that there continues to be a public policy need for the commission's existence and recommended that the sunset date be extended to June 2028⁶.
- The Commission published a lesson's learned document on the anniversary of the 2018 Anchorage Earthquake identifying specific areas for improvement. This document succinctly stated the findings of the commission based on the multiple presentations, studies, and reviews completed following the 2018 event.
- The Commission website has undergone significant updates under the guidance of Commissioner Salisbury.
- The Strategic Plan⁷ for the Commission was updated to align with the activities and expertise of the current commissioners.

POLICY RECOMMENDATIONS

- PR 2019-1 recommend the state support the Alaska Earthquake Center's request to adopt and incorporate a portion of the existing EarthScope stations into the state's permanent seismic monitoring network.

LONG-TERM PROJECTS

- Identification and Mitigation Prioritization of Seismically Vulnerable Schools and Public Buildings:
Commissioner Belanger kicked off a project using FEMA's state-of-practice *Rapid Visual Screening* method to assess the vulnerability of a select number of Anchorage Fire Department facilities to significant structural damage during a design earthquake. The results of this project will provide the district with an effective framework for prioritizing future construction projects.
- Advocate for continued earthquake research in Alaska:

⁵ Audit Control Number 10-20117-19 (<http://legaudit.akleg.gov/docs/audits/sunset/dnr/20117-Seismic-Hazards-WEB.pdf>)

⁶ HB 197 was passed in March 2020 extending the commission sunset date to June 30, 2028.

⁷ https://seismic.alaska.gov/download/ashsc_meetings_minutes/ASHSC_Strategic_Plan.pdf

The commission voiced support for the Alaska Earthquake Center's efforts to adopt EarthScope stations into their existing network.

- Leadership in Preparing Engineers and Architects for Post-Earthquake Inspections:
The commission brought together leaders in the professional architecture and engineering communities with emergency managers. This continues an ongoing effort to formalize a relationship for deploying volunteer safety assessment teams following earthquakes and other natural disasters.

PARTNERING & OUTREACH

- Commissioner Kelly worked with representatives of EERI to compare the impact of the 2018 Anchorage Earthquake with the FEMA Rapid Visual Screening work previously completed by this Commission.
- Commission Belanger worked with AK DHS&EM along with FEMA to offer training in Anchorage and Fairbanks on the following topics:
 - *ATC-20: Post Earthquake Safety Evaluation of Buildings*
 - *FEMA P154: Rapid Visual Screening of Buildings for Potential Seismic Hazards*
 - *FEMA E-74: Reducing the Risks of Nonstructural Earthquake Damage*
- Commissioner Strait worked with Alaska professional organizations to offer training on post-earthquake safety assessments. This was sponsored by the Commission and provided in September 2019. Individuals who completed this training are now registered with the California SAP program and can be called upon to respond to emergencies in Alaska.