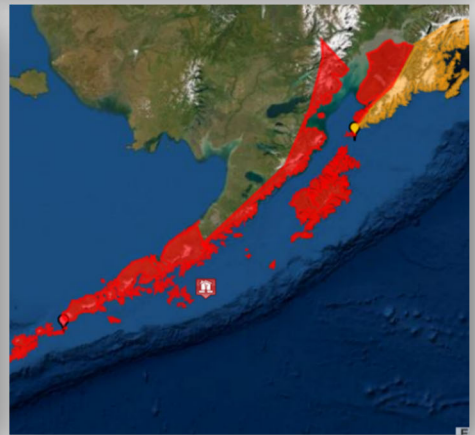
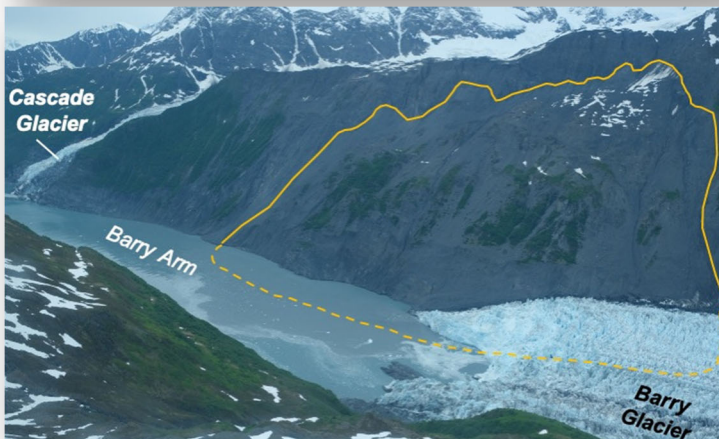
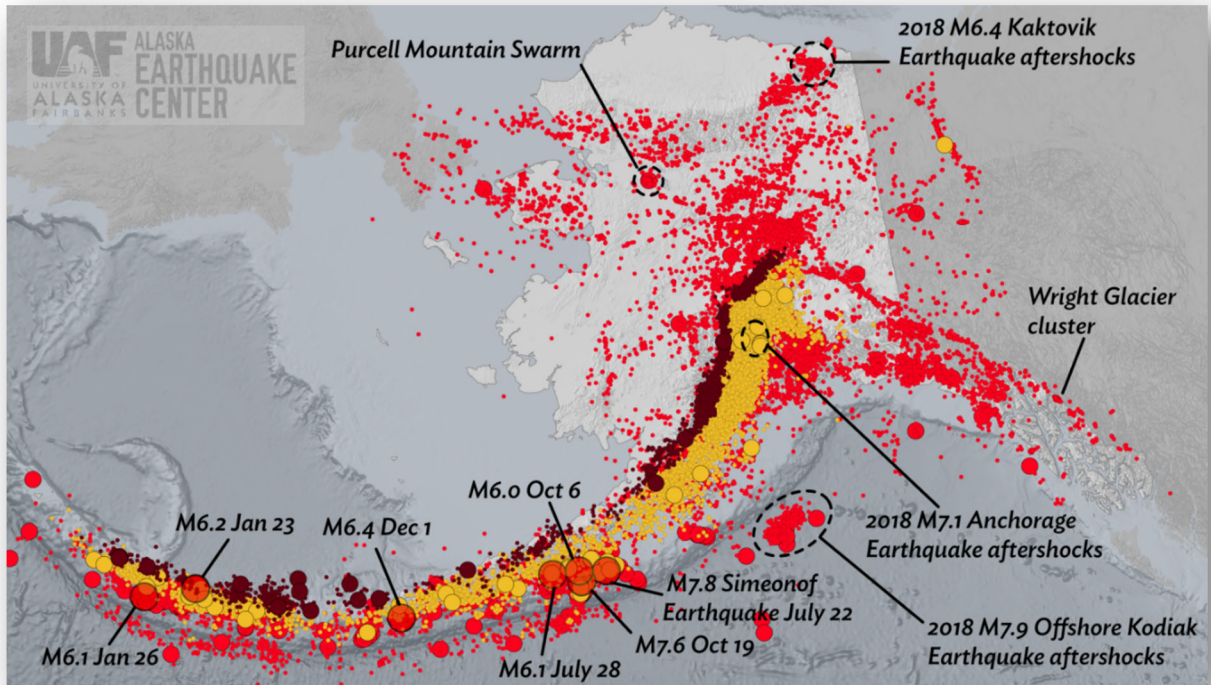


ASHSC Alaska Seismic Hazards Safety Commission



2020 ANNUAL REPORT

TO THE GOVERNOR AND STATE LEGISLATURE

EXECUTIVE SUMMARY

2020 was a typical year for earthquakes in Alaska. The Alaska Earthquake Center (AEC) recorded 49,250 seismic events: slightly fewer than in 2019.

These included 2020's largest earthquake anywhere in the world, the M7.8 July 22 Simeonof Island Earthquake. The M7.6 October 19 aftershock registered as the third largest 2020 earthquake worldwide. These events triggered tsunami warnings and evacuations throughout the Aleutians and Southcentral Alaska, forcing communities to head for high ground. Fortunately, the tsunami waves were small, and damage was minor in Sand Point and other nearby communities.

Aftershock sequences from the active 2018 seismic season continue elsewhere (*see cover photo*).

Alaska continues to benefit from the AEC's expanded seismic sensor network, having adopted 45 additional stations from the USArray project in 2020. These seismic stations have improved our ability to detect earthquakes and have also opened new avenues of research through partnerships with UAF.

Along with the rest of the world, the Alaska Seismic Hazards Safety Commission's activities were impacted by the COVID-19 pandemic. We used our experience with remote meetings to successfully navigate a challenging year and find success on several fronts including:

- Worked with Legislature to pass HB197 that extends the sunset date of this commission to 2028.
- Several commissioners presented on the M7.1 2018 Anchorage Earthquake at the 2020 National Earthquake Conference in San Diego
- Published Policy Recommendation 2020-1, Improve Building Code Adoption & Enforcement, in response to the M7.1 2018 Anchorage earthquake: [PR 2020-1](#)
- Published Information Circular "Earthquake early warning system for Alaska: fact sheet" through the Division of Geological & Geophysical Surveys: [DGGs IC 88](#)
- Held an impromptu meeting following the M7.8 Simeonof Island Earthquake and issued a "one-pager" information statement: [The M7.8 July 21, 2020 Simeonof Island Earthquake](#)
- Partnered with the Alaska Native Science and Engineering Program (ANSEP) to provide hands-on education materials to enhance middle and high school earthquake curriculum
- Reviewed Rapid Visual Screening (RVS) report for the Anchorage Fire Department and purchased 100 Applied Technology Council "ATC-20" manuals (*Procedures for post-earthquake safety evaluation of buildings*) to supply to Alaska engineers
- Continued monitoring of the Barry Arm landslide and tsunami hazard in Prince William Sound

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: 2020 Alaska Seismic Activity map from Alaska Earthquake Center, Barry Arm landslide, photo by DGGS, Tsunami warning map for the 7/22/21 Simeonof Earthquake from the National Tsunami Warning Center

DRAFT

**ALASKA SEISMIC HAZARDS SAFETY COMMISSION
ANNUAL REPORT TO THE GOVERNOR
& STATE LEGISLATURE FOR 2020**

INTRODUCTION

This report¹ summarizes the Alaska Seismic Hazards Safety Commission's business, activities, and accomplishments in 2020 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 49,250 events during 2020 with the largest being a M7.8 event in the Aleutian Islands. Additional activity is seen in continuing aftershocks resulting from significant 2018 earthquakes.

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 2020

The following summarizes the ASHSC's business conducted in 2020, 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.).

¹ *The Commission's documents (e.g. annual reports, meeting agendas and minutes, strategic and operating plans, policy recommendations and white papers, etc.) are available on our website <https://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 hazards, engineers who design our infrastructure to minimize earthquake risk, government representatives who respond to earthquake disasters, and an insurance representative who ensures financial security following an earthquake.

TABLE 1: COMMISSION MEMBERSHIP IN 2019

COMMISSIONER / OCCUPATION / RESIDENCE	REPRESENTATION
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
Paul Nelson § 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
David Gibbs Director Emergency Services, FNSB; Fairbanks	Local Government
Kelsey Trimmer † Mat-Su School Board; Wasilla	Local Government
Thomas Bergey § Mat-Su School Board; Wasilla	Local Government
Mike Devine State Farm; Wasilla	Insurance Industry
Garret Gladsjo Engineering Consultant, Juneau	Public/Restricted
Dan Neuffer, PE Geotechnical Engineer, Palmer	Public/Restricted
Sterling Strait Structural Engineer, Alyeska Pipeline; Anchorage	Public/Restricted

† Resigned during 2020

§ Appointed in 2020

MEETINGS

The ASHSC conducted five meetings in 2020, including four public meetings (February 25, June 6, October 10, & December 17) and one emergency meeting (July 22) following the Simeonof Island Earthquake.

ETHICS ACT (AS 39.52)

The ASHSC submitted quarterly ethics reports to the Department of Law in 2020, with no written determinations, requests for determinations, or suspected potential violations.

FINANCES

The ASHSC's expenditures in 2020 (SFY19) totaled \$9,776.24 out of an annual budget of \$10,000.

Historically our funds have been used to support travel and expenses for attending commission meeting, however with this activity was reduced in 2020 due to the COVID epidemic.

Our Commission worked to find alternate methods of utilizing our budget to support our mission.

ACTIVITIES & ACCOMPLISHMENTS IN 2020

This section summarizes the ASHSC's activities and accomplishments in 2020. 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.

- **Commission Extended** – In April 2020, HB197 was signed by Governor Dunleavy extending the sunset date of the Alaska Seismic Hazards Safety Commission to June 2028. Commissioner Strait and DGGs Director Masterman attended legislative committee meetings to testify on behalf of this bill.
- **2020 National Earthquake Conference** - Several commissioners were invited to speak at this national conference in San Diego on the impact of the M7.1 2018 Anchorage Earthquake. Commissioner Belanger moderated the session while Commissioner Ruppert presented [seismological findings](#) and Commissioner Strait discussed [lessons learned for structural engineers](#).
- **Earthquake Early Warning System for Alaska** – We published an informational fact sheet covering how an earthquake early warning system could be developed for Alaska. This document was prepared in response to increased public awareness following implementation of an earthquake early warning system in California. The fact sheet is published through the Division of Geological & Geophysical Surveys: [DGGs IC 88](#)
- **M7.8 Simeonof Island Earthquake Emergency Meeting** – An impromptu meeting was held on July 22nd following the Simeonof Island Earthquake following our Earthquake Response Plan. Briefings were given by the Alaska Earthquake Center, DGGs, and AK DHS&EM covering the impact and response to the event. Following the meeting we issued a “one-pager” information

statement on the earthquake: [The M7.8 July 21, 2020 Simeonof Island Earthquake](#)

- **Partnership with ANSEP** – We partnered with the Alaska Native Science and Engineering Program (ANSEP) to provide a table-top earthquake shake table for their middle and high school education program. This is a portable device which can be used to demonstrate the effect of earthquakes on structures and allows students to build and test their own structures.
- **RVS for the Anchorage Fire Department** - Commissioner Belanger led an effort to complete Rapid Visual Screening assessments of eight facilities for the Anchorage Fire Department. This effort is a continuation of the RVS work previously completed by this Commission for several school districts.
- **Procured ATC-20 Manuals** – Unused travel funds were used to purchase a supply of ATC-20 field manuals covering procedures for post-earthquake safety evaluation of buildings. These will be distributed at future training events to prepare Alaskan engineers and building owners to respond to potentially damaging earthquakes.
- **Barry Arm landslide and tsunami hazard** – Several commissioners are part of a task force monitoring the potential Barry Arm landslide in Prince William Sound. Their activities include photo reconnaissance, geological studies, and installation of instrumentation.

POLICY RECOMMENDATIONS

- **PR 2020-1 Improve Building Code Adoption & Enforcement** – This policy recommendation ([PR 2020-1](#)) discusses improvements for adopting and enforcing building codes. These recommendations were the result of lessons learned from the 2018 Anchorage Earthquake where reduced damage was observed in regions that had adopted the International Building Code.

LONG-TERM PROJECTS

- Advocate for continued earthquake research in Alaska:
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

- We are excited to work with ANSEP as part of their earthquake education program. Multiple commissioners have expressed their interest in being speakers for their Junior High and High School programs.