

S C R

16

HOUSE COMMITTEE ON STATE AFFAIRS

RECAP OF
SCR 16

1964 Great Alaska Earthquake

Received February 17, 1989
by Sens. Sturgulewski, Zharoff, Kelly, Fischer,
Faiks and Szymanski

Heard February 23, 1989

Passed Out of Committee February 23, 1989
4 Do Pass

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HOUSE COMMITTEE REPORT

(7)

Date Referred: February 17, 1989

FURTHER REFERRALS:

Date of Committee Action: _____

The STATE AFFAIRS Committee considered:

SCR 16

SENATE CONCURRENT RESOLUTION NO. 16
Commemorating the 1964 Great Alaska Earthquake.

RECOMMENDS:

- replacing with _____ the same title
- the attached amendment(s) a new title
- do pass
- do not pass
- no recommendation
- individual recommendations
- additional referral to the _____ Committee

ADOPTS: _____ letter of intent

ATTACHES NEW FISCAL NOTE(S):

- fiscal impact
- zero fiscal note
- zero with analysis

APPROVES PREVIOUS:

- fiscal note(s) published: _____
- zero fiscal notes(s) published:
2/15/89 DNR

SIGNING DO PASS:

Carl Spahr

Scott Thompson

Wayne Harless

D. C. Fambro

SIGNING OTHER THAN DO PASS:
(Do Not Pass, No Recommendation, Amend)

D. C. Fambro

 Chairman's signature

STATE OF ALASKA
1989 LEGISLATIVE SESSION

BILL VERSION: SCR 16

Item 2

PUBLISHED DATE: 2/15/89

FISCAL NOTE

REQUEST:

Revision Date: 13-Feb-89 Agency Affected: Natural Resources
 Title: Commemorating the 1984 BRU: Management & Administration
 Great Alaska Earthquake
 Sponsor: Sturgelewski, Zharoff, Kelly Components: Commissioners Office
 Fischer, Faiks & Szymanski
 Requestor: Senate Resources

EXPENDITURES/REVENUES: (Thousands of Dollars)

OPERATING	FY 89	FY 90	FY 91	FY 92	FY 93	FY 94
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL						
REVENUE						

FUNDING: (Thousands of Dollars)

GENERAL FUND						
FEDERAL FUNDS						
OTHER						
TOTAL	0.0					

POSITIONS:

FULL-TIME						
PART-TIME						
TEMPORARY						

ANALYSIS: (Attach a separate page if necessary)

[Empty box for analysis]

Prepared by: Carol Wilson Phone: 465-2400
 Division: Commissioner's Office Date: 13-Feb-89

Approved by Commissioner: Lennie Gorsuch Date: 13-Feb-89
 Agency: Department of Natural Resources

Distribution (by preparer) :
 Legislative Finance
 Legislative Sponsor
 Requestor
 Office of Management and Budget
 Impacted Agency(ies)

Item 3

STATE OF ALASKA



Executive Proclamation

by

Steve Cowper, Governor

The State of Alaska is highly susceptible to major earthquakes, tsunamis and other natural hazards. However, there is no reason to live in fear of these natural events if preparations and precautions are taken.

The loss of life and property can be greatly reduced if preparedness measures are taken before, during and after a damaging quake, tsunami or other natural event. This preparedness information is important to all people since many live in or travel to areas of the State of Alaska with high potential for major earthquakes and/or tsunamis.

1989 marks the 25th Anniversary of the March 27, 1964, Great Alaska Earthquake.

The State of Alaska has learned and applied many lessons from these devastating events. The month of March will focus on these lessons and how to better prepare the State and its people for future catastrophic natural events through the assistance of governmental agencies, service organizations, educational institutions and the business community. It is important to implement the results of these lessons throughout the year.

NOW, THEREFORE, I, Steve Cowper, Governor of the State of Alaska, do hereby proclaim the month of March 1989 as:

EARTHQUAKE AWARENESS MONTH

in Alaska, and urge all Alaskans to recognize the importance of being prepared for future catastrophic natural events.

DATED: December 5, 1988



Done by

A handwritten signature of Steve Cowper in cursive script.

Steve Cowper, Governor,
who has also authorized
the seal of the State of
Alaska to be affixed to
this proclamation.



January 1989

'64 / '89 Committee

William E. Davis
Chairman

John Davies
State Seismologist

Sara L. McCullough
*Executive Director
South Central Chapter
American Red Cross*

Walter B. Parker
*President, Alaska Academy
of Engineering and Sciences*

Lidia L. Selkregg
*Professor Emeritus
University of Alaska Anchorage*

Mike Webb
*Alaska Division
of Emergency Services*

1989 marks the 25th year since the Great Alaska Earthquake. A planning committee, sponsored by the Alaska Academy of Engineering and Sciences, is coordinating activities in remembrance of the disaster. The theme is 1964/1989--25 Years Later.

Four kinds of events are scheduled:

I. Preparation for disasters

Public awareness of the nature and dangers of large-scale disruptions will be emphasized. Displays will show steps that can be taken to prepare the home and workplace. Prevention and mitigation plans already in place, that serve as models of readiness, will be given special recognition. Programs for particular groups, for instance preparing public workers for quick responses, will also be conducted.

II. Commemorative

Events in remembrance of 1964 are planned. A dinner reunion of Alaskans involved in the Earthquake and recovery was a high point of the 20th anniversary and a similar get-together is anticipated in 1989. A display centering on the 1964 events is planned for the Anchorage Museum of History and Art. Efforts are underway to set up an archive where information can be centralized. We hope to be able to give special recognition to people who were critical in 1964.

III. Historical and educational

Information about the Great Alaska Earthquake will be assembled and made available to the public. Where information has not been collected, it will be sought; we hope to preserve the data in the archive. The 25th Anniversary provides a chance to look back to see what effects the 1964 events had on individuals and groups. Special attention will be given to the lessons that were learned in 1964, particularly those having to do with mitigation and prevention.

IV. Scientific and technical

A series of meetings dealing with current information about natural disasters is planned. A public workshop on how decision-makers can use scientific and technical data is scheduled. Other possibilities include a sectional at the Alaska Science Conference and in conjunction with professional meetings.

A schedule of events is attached.



January 7, 1989

'64/'89 Committee

SCHEDULE OF EVENTS

William E. Davis
Chairman

John Davies
State Seismologist

Sara L. McCullough
Executive Director
South Central Chapter
American Red Cross

Waller B. Parker
President, Alaska Academy
of Engineering and Sciences

Lidia L. Selkregg
Professor Emeritus
University of Alaska Anchorage

Mike Webb
Alaska Division
of Emergency Services

February 23, 1989 - 10:30 A.M. MEDIA BRIEFING

A press conference to provide information about the earthquake commemoration activities. Sponsored by the '64/'89 Committee. 3rd floor conference room, Frontier Building, 36th and C St, Anchorage.

February 23-25, 1989 TEACHER WORKSHOP

Quake and Shake- Earthquakes in Perspective. A teacher workshop for graduate credit sponsored by the Alaska Division of Emergency Services, Anchorage School District, and Alaska Pacific University. Further information: Mike Webb, 249-1370.

March 1989 EARTHQUAKE AWARENESS MONTH

Earthquake Retrospective. Anchorage Museum of History and Art. Exhibit featuring photographs documenting the 1964 disaster. Sponsored by the '64/'89 Committee and the Cook Inlet Historical Society. Further information: W. E. Davis, 276-3499.

March 4 and 18, 1989 PREPAREDNESS DISPLAYS

March 4 -- Northway Mall. March 18 -- Dimond Mall. Practical advice on getting ready for a natural disaster. Displays by groups, like the American Red Cross, that deal with emergency services. Sponsored by the '64/'89 Committee. Further information: Sara McCullough, 277-1538.

March 16, 1989 - 8 P.M. HISTORY OF EARTHQUAKES

Pacific Rim Tectonic Events. Anchorage Museum of History and Art. Talk, with slides, on the major earthquakes, volcanic eruptions, and associated events in the history of the North Pacific. Sponsored by the Cook Inlet Historical Society and the '64/'89 Committee. Further information: W. E. Davis, 276-3499.

March 20 - 23, 1989

PUBLIC POLICY WORKSHOP

Seminars and discussions on making scientific and engineering information more useful to decision-makers. Times, locations, and speakers to be announced. Sponsored by the '64/'89 Committee. Further information: Wail Parker, 333-5189.

May 23 - 24, 1989

UTILITY WORKERS' COURSE

Earthquake Hazard Mitigation for Utility Lifeline Systems. A two-day course for public and private utility officials emphasizing ways to reduce earthquake hazard risks. Conducted by the Emergency Management Institute; sponsored by the Alaska Division of Emergency Services. Advance registration required. Further information: Mike Webb, 249-1370.

June 1 - 2, 1989

HEALTH CARE FACILITIES COURSE

Non-structural Earthquake Hazard Mitigation. A two-day course for hospital and other health care facility workers stressing ways to reduce risks from non-structural dangers. Conducted by the Emergency Management Institute; sponsored by the Alaska Division of Emergency Services. Advance registration required. Further information: Mike Webb, 249-1370.

September 1989

U.S.G.S. EARTHQUAKE CONFERENCE

Scientific conference reviewing current data on seismic events. Times, locations, and speakers to be announced. Further information: Mike Webb, 249-1370.

FACT SHEET ON THE GREAT ALASKA EARTHQUAKE OF 1964:

- DATE - March 27, 1964 AST (March 28, 1964 GMT)
- ORIGIN TIME - 5:36 PM AST (03:36:14.0 \pm 0.2 GMT)
- MAGNITUDE - 9.2 on the Richter scale. Note: in 1977 the magnitude of this and many other great earthquakes were recalculated to take into account energy released at long wavelengths which was not measurable with seismographs in use in 1964. As a result of this recalculation, the magnitude of the great Alaska earthquake of 1964 was increased from initial estimates of 8.4-8.6 to 9.2, making it the second largest earthquake ever recorded (the largest was a 9.5 earthquake in Chile in 1960).
- EPICENTER - 6 mi east of the mouth of College Fiord
61.04°N \pm 0.05 & 147.73°W \pm 0.07
55 mi west of Valdez
73 mi east of Anchorage
- DEPTH - 17 mi \pm 4
- INTENSITY - The maximum intensity reported was XI (major damage) on the 12-point Modified Mercalli Intensity Scale. The damage zone covered about 50,000 sq. miles. Intensities of IV-V (felt by most people, minor damage) were reported as far away as Cold Bay, Bethel, McGrath, Kotzebue, Deadhorse, Ft. Yukon, Eagle, and Skagway. The felt area was about 500,000 sq. miles. The strong ground motion in the Anchorage area lasted about four minutes and probably reached peak accelerations of 0.2 g (1.0 g is the force of gravity at the earth's surface). This long duration of shaking triggered many landslides and avalanches. Most of the damage in Anchorage was due to landslides from the bluffs along Knik Arm and Ship Creek.
- LOSSES - Deaths: 115 in Alaska, 16 in Oregon and California.
Damage: 300-400 million dollars (1964).
- CAUSE - The inexorable northwestward motion of the Pacific plate at about 2-3 in. per year causes the crust of southern Alaska to be compressed and warped, with some areas along the coast being depressed and other areas inland being uplifted. After periods of tens to hundreds of years this compression is relieved by the sudden southeastward motion of portions of coastal Alaska as they move back over the subducting Pacific plate.
- As a result of the 1964 quake, the Latouche Island area moved about 60 feet to the southeast. Also, the patterns of uplift and subsidence which had been slowly developing prior to the earthquake were suddenly reversed with areas around Montague Island being uplifted 15-30 feet and areas around Portage down-dropped as much as 9 feet. The hinge line (line of no vertical change separating the uplift and subsidence zones) extended from near the epicenter in Prince William Sound to the SE coast of Kodiak Island. This vertical deformation affected an area of approximately 100,000 sq. miles.

TSUNAMI -

The tsunami (seismic sea wave) generated was the second largest ever recorded, again following only the 1960 Chile earthquake. The largest amplitudes recorded at tide gauges were (in feet): 7.6 at Yakutat; 14.3 at Sitka; 8.9 at Prince Rupert, B.C., Canada; 8.1 at Tofino, B.C., Canada; 13.0+ at Crescent City, California; 7.4 at San Francisco, California; 7.8+ at Ensenada, Mexico; and 12.5+ at Hilo, Hawaii. Of the 122 deaths attributable to the effects of the ocean, about half were due to the open-ocean tsunami: 4 at Newport Beach, Oregon; 11 at Crescent City, California; and about 51 in Alaska.

Local waves caused by underwater landslides claimed at least 56 lives (and may have been responsible for others): 31 in Valdez, 13 in Whittier, and 12 in Seward. Maximum heights reported for these waves were 220 feet in Valdez Arm, 104 feet in Whittier, and about 30 feet in Seward.

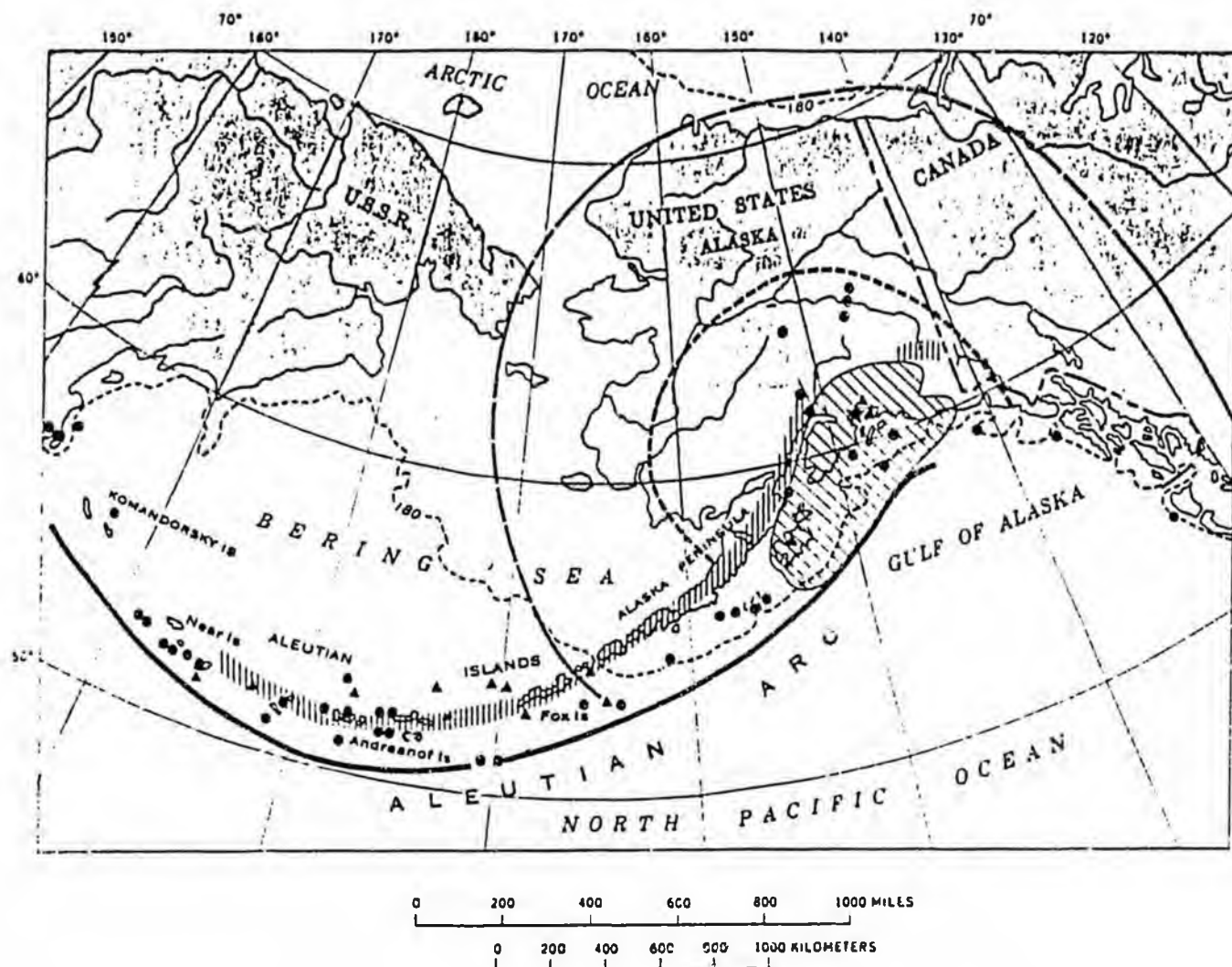
Heights for other waves of uncertain origin were reported as follows (in feet): 90 at Chenega, 50-70 at Port Nellie Juan, 40 at Point Nowell, and 5 at Cordova. These heights are not all referenced to the same stage of the tide, but at these and many other communities the wave arrived near high tide, causing the most possible damage.

Seiches (waves excited in a closed basin of water whose period is near the fundamental resonant period of the basin) were observed as far away as Louisiana where a number of fishing boats were sunk. Changes in water wells were reported from as far away as South Africa.

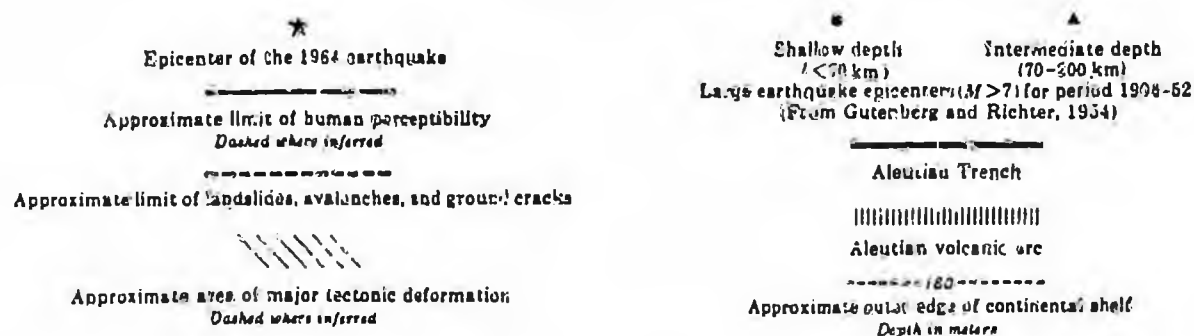
AFTERSHOCKS - The aftershock zone of this earthquake was about 150 mi wide (NW-SE) and extended about 490 mi from Prince William Sound to the SW end of Kodiak Island. The main shock and its aftershocks occurred on a fault which is part of the boundary between the Pacific and North American plates. This fault surface extends from the trench in the Gulf of Alaska and dips at about 10 degrees to the NW reaching a depth of about 21 mi under Anchorage and increases in dip under Cook Inlet to reach a depth of 67 mi under the volcanos of the easternmost Aleutian Arc. The aftershocks ranged along this surface at depths from 12 mi beneath the Gulf of Alaska to 18 mi beneath the Kenai Peninsula and Kodiak Island.

Thousands of aftershocks were recorded in the months following the mainshock. In the first day there were 11 aftershocks with magnitude greater than 6.0 on the Richter scale; in the next three weeks there were 9 more. Smaller aftershocks continued for more than a year.

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EXPLANATION



1.—Map of Alaska and adjacent areas showing the location of the 1964 earthquake, the area affected by the earthquake, epicenters of previous major earthquakes, belts of active volcanism, and the Aleutian Trench.

GEORGE PLAFKER
U.S. GEOLOGICAL SURVEY

Reprinted with minor changes from
U.S. Geological Survey Professional Paper 543-I,
"Tectonics of the March 27, 1964, Alaska Earthquake"