

Geological Consent for Hazards Mitigation and Resource Management Policy

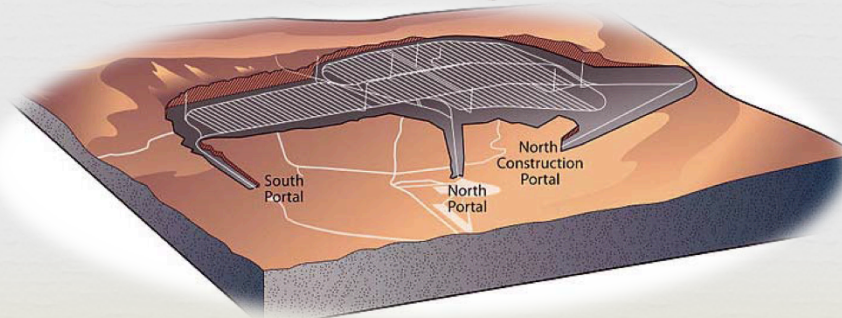


Linda Rowan, UNAVCO and Michael
Wyssession, Washington University, St Louis





EARTH SCIENCE
LITERACY PRINCIPLE



Geosciences Serving Public Policy

- ❧ Human impacts
- ❧ Earth science literacy
- ❧ Resources
- ❧ Hazards



Geosciences Serving Public Policy, Chapter 7, Michael Wyssession and Linda Rowan, GSA Special Paper 501: The Impact of the Geological Sciences on Society, Edited by Marion E. Bickford, 2013

Surveys and More Surveys



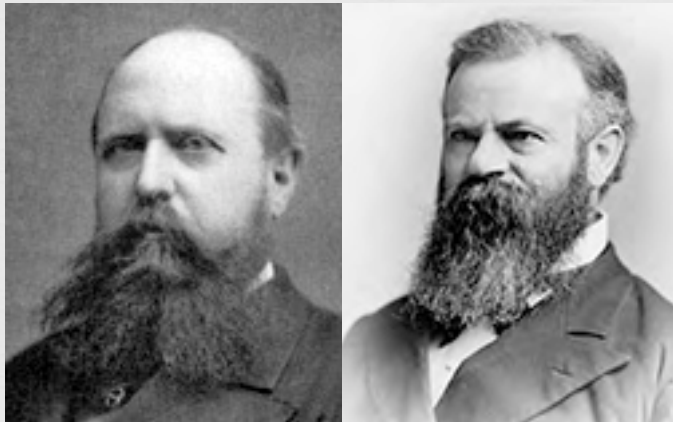
- ❧ Ferdinand Hayden (DOI) – 1867-1883 Geological and Geographical Survey of the Territories
- ❧ Clarence King (DOI) – 1867-1872 Geological Exploration of the Fortieth Parallel
- ❧ John Wesley Powell (SI, IL) – 1867-1868 Rocky Mountains, 1869 Colorado and Green Rivers, others
- ❧ George Wheeler (Army) – 1872 -1879 Western US beyond the 100th Meridian



Men With Beards Make Decisions



❧ National Academy of
Sciences



Othniel Marsh John Wesley Powell

- ❧ Coast & Geodetic
Survey (Treasury) to
Coast & Interior Survey
(Interior) – geodetic,
topographic & land
parceling
- ❧ Geological Survey be
created in Interior –
geologic structure &
economic resources

Geological Survey Begins



- ❧ Organic Act of March 3, 1879 (20 Stat. 394; 43 U.S.C. 31), for "the classification of the public lands and examination of the geological structure, mineral resources, and products of the national domain."
- ❧ Topographic mapping and chemical and physical research added in the Act of October 2, 1888 (25 Stat. 505, 526)
- ❧ Gaging the streams and determining the water supply of the United States added in 1894 (28 Stat. 398).

USGS

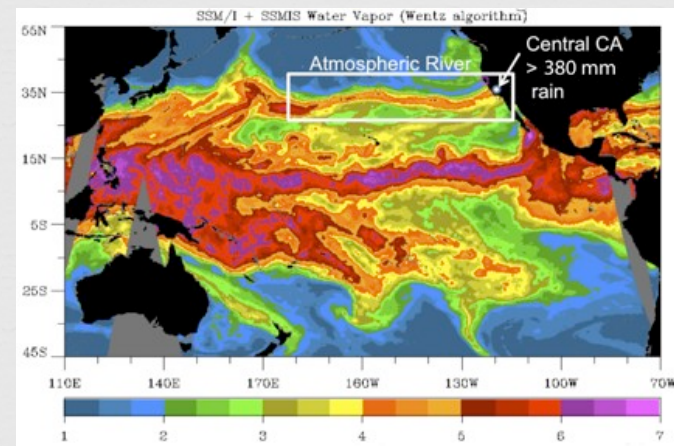


- ❧ Not regulatory or policy making
- ❧ Geology in support of resource management
 - ❧ Mapping for classification for land use
 - ❧ Water resources for water supply
 - ❧ Mineral resources for mining

What About Hazards?



- ❧ Disaster Response and Relief a Local Concern
- ❧ Disaster Relief Act of 1974 (42 U.S.C. 5132): USGS responsible for earthquake, volcanic, landslide, mudslide or other geological catastrophe
- ❧ Earthquake Hazards Reduction Act of 1977 (42 U.S.C. 7701): prediction, assessment, seismic monitoring & information dissemination
- ❧ FEMA Organized in 1979: preparedness & response
- ❧ Pre-disaster Hazard Mitigation of 2000: multi-hazard maps



Volcanoes



USGS & U.S. Office of Foreign Disaster Assistance (OFDA) develop the Volcano Disaster Assistance Program (VDAP) after Nevado del Ruiz volcanic catastrophe in 1985



Atomic Age Drives National Energy Policy



- ❧ Einstein Letter to Roosevelt in 1939
- ❧ Uranium fission
- ❧ Uranium resources
- ❧ Roosevelt establishes the S-1 Uranium Committee (precursor to Manhattan Project)

Albert Einstein
Old Grove Rd.
Massau Point
Peconic, Long Island

-2-

F.D. Roosevelt,
President of the U.S.
White House
Washington, D.C.

The United States has only very poor ores of uranium in moderate quantities. There is some good ore in Canada and the former Czechoslovakia, while the most important source of uranium is Belgian Congo.

Sir:

Some recent communications to me indicate that uranium may be turned into a mediate future. It is to call for watchfulness of the Administration to your attention.

In the course of the work in America - that it is in a large mass of cities of new radium - almost certain that

This new phase and it is conceivable that it is a new type, carried by the whole part of such bombs might be in the air.

In view of this situation you may think it desirable to have some permanent contact maintained between the Administration and the group of physicists working on chain reactions in America. One possible way of achieving this might be for you to entrust with this task a person who has your confidence and who could perhaps serve in an unofficial capacity. His task might comprise the following:

a) to approach Government Departments, keep them informed of the further development, and put forward recommendations for Government action, giving particular attention to the problem of securing a supply of uranium ore for the United States;

b) to speed up the experimental work, which is at present being carried on within the limits of the budgets of University laboratories, by providing funds, if such funds be required, through his contacts with private persons who are willing to make contributions for this cause, and perhaps also by obtaining the co-operation of industrial laboratories which have the necessary equipment.

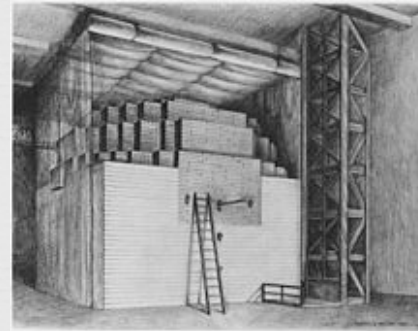
I understand that Germany has actually stopped the sale of uranium from the Czechoslovakian mines which she has taken over. That she should have taken such early action might perhaps be understood on the ground that the son of the German Under-Secretary of State, von Weizsäcker, is attached to the Kaiser-Wilhelm-Institut in Berlin where some of the American work on uranium is now being repeated.

Yours very truly,
A. Einstein
(Albert Einstein)

Energy Policy



- ⌘ Atomic Age
- ⌘ Military Necessity
- ⌘ Energy Supply & Demand
- ⌘ Environmental Impacts



Chicago Pile-1, 1942



Big Inch Pipeline, 1943



OPEC Oil Embargo,
1973



Yucca Mountain, 1982

Birth of DOE



- ❧ Atomic Energy Act of 1946 Creates Atomic Energy Commission
- ❧ Atomic Energy Act of 1954 Begins nuclear energy for civilian purposes
- ❧ Energy Policy Office Established in 1973
- ❧ Energy Research & Development Administration is created in 1975
- ❧ Department of Energy established in 1977
- ❧ Nuclear Waste Policy Act of 1982 (Yucca and more)

Recent Energy Policy

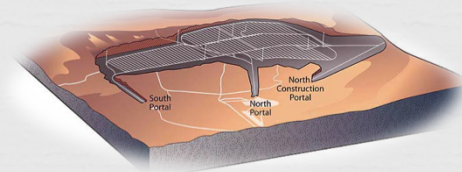
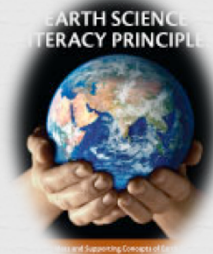


- ❧ Energy Policy Act of 1992
 - ❧ EPA promulgate radiation standards for Yucca
 - ❧ 10,000 years to 1,000,000 years (Court decision, 2004)
- ❧ Energy Policy Act of 2005
 - ❧ Exempts hydraulic fracturing fluids from CAA, CWA and Safe Drinking Water
- ❧ Energy Independence & Security Act of 2007
 - ❧ More biofuels in gasoline

Geosciences Serving Policy



- ❧ Natural Resources
- ❧ Hazards
- ❧ Human Impacts
- ❧ Earth Science Literacy



- ❧ These factors drive geological consent for public policy, requiring continued research and development in the oldest science of the planet, geology.



Happy Birthday GSA

