

Icebreaker Project

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Overview

- Earthquake and Tsunami, March 2011
- Plant Failures
- Immediate Effects
- Long-Term Effects
- Disaster Prevention Strategies

Introduction

- Fukushima Daiichi Nuclear Power Plant
- 3 of 6 reactors operating
- 9.0 earthquake 150km Northeast
- 15m tsunami

Fukushima Daiichi Power Plant

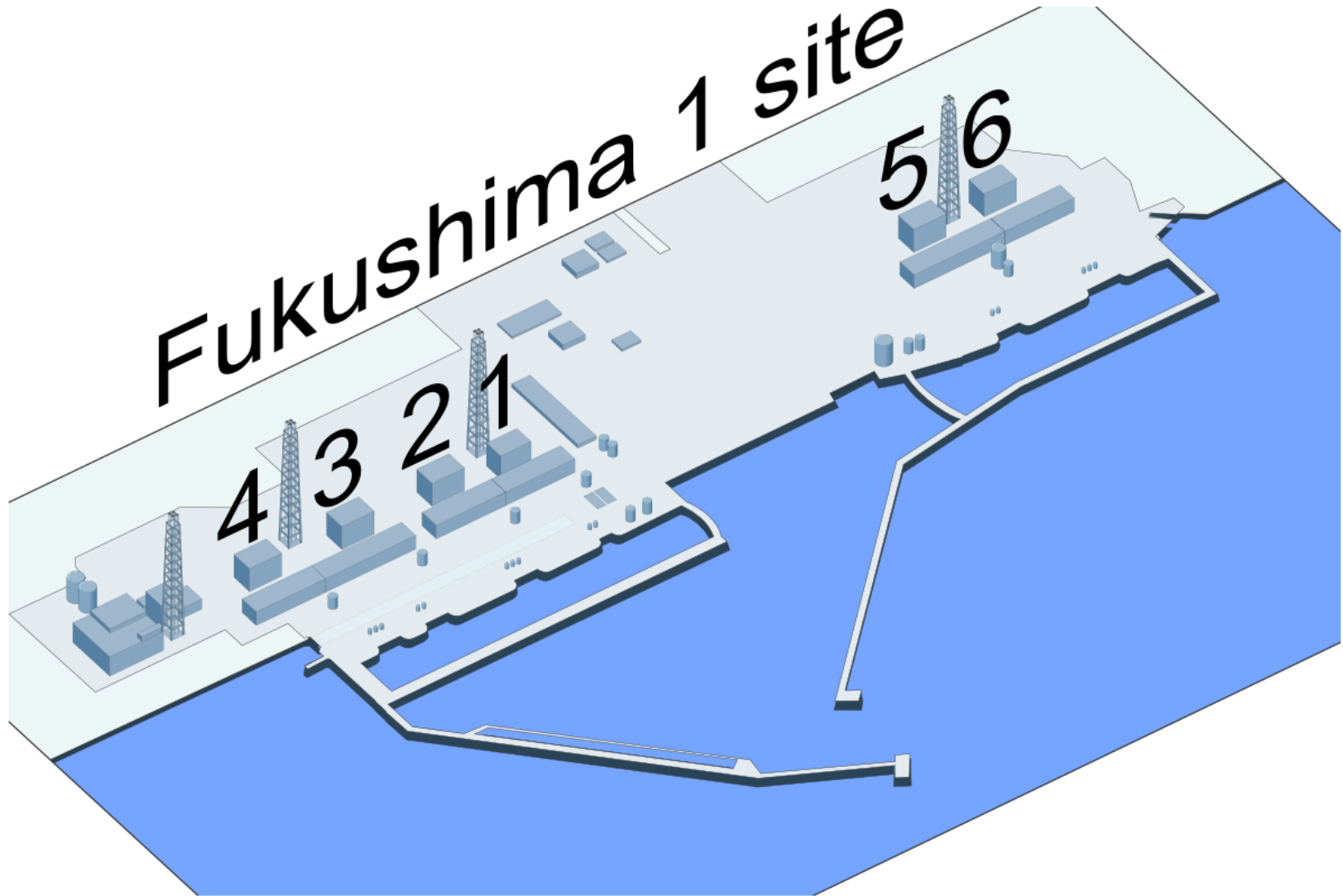


Photo Credit: Wikipedia

National Oceanic and Atmospheric Administration Tsunami Map

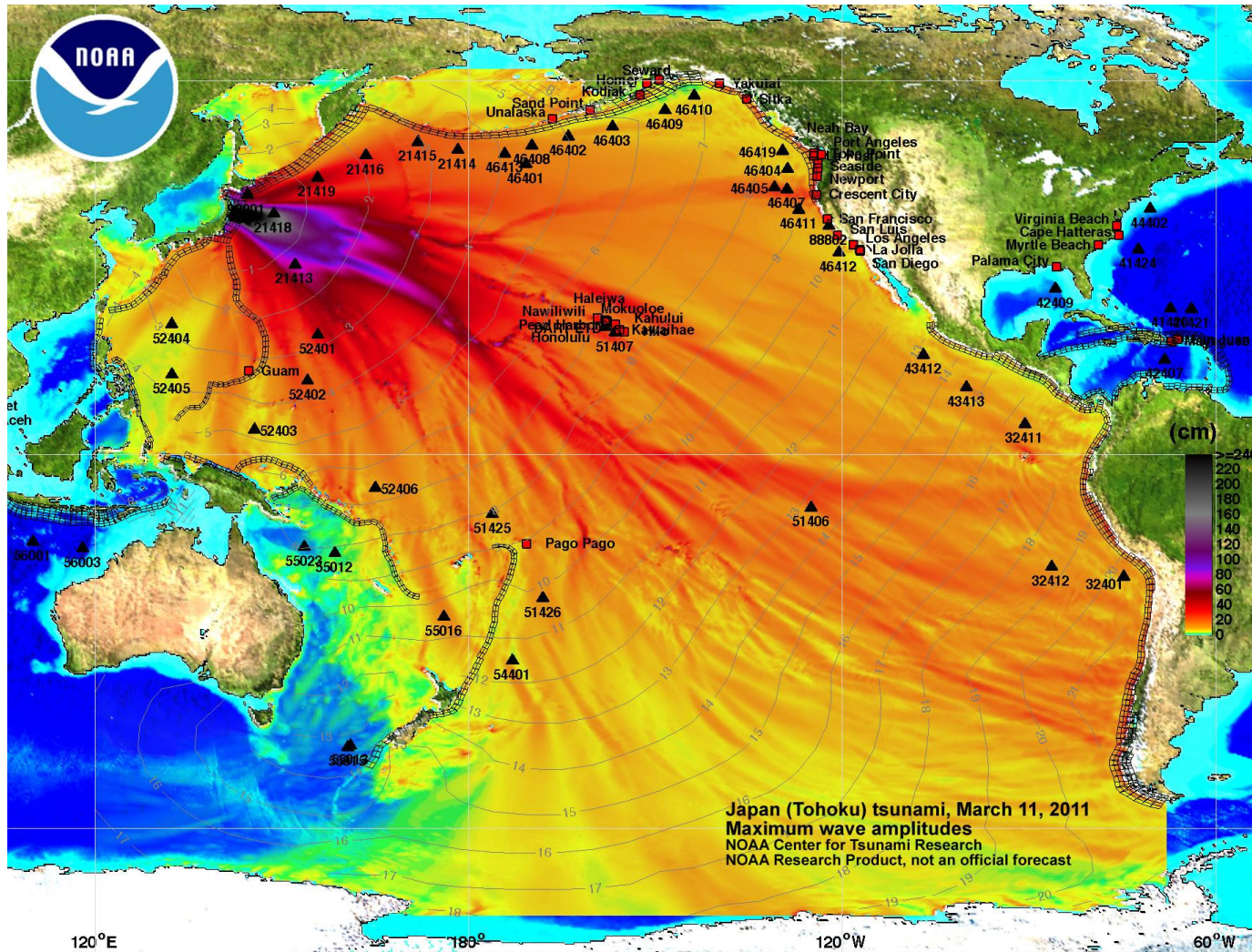


Photo Credit: National Oceanic and Atmospheric Administration

Failures at Fukushima

- Tsunami breached seawall
- All power sources failed
- Cooling system disabled
- Reactor cores melted down
- Hydrogen explosions occurred

Fukushima Reactor Detail

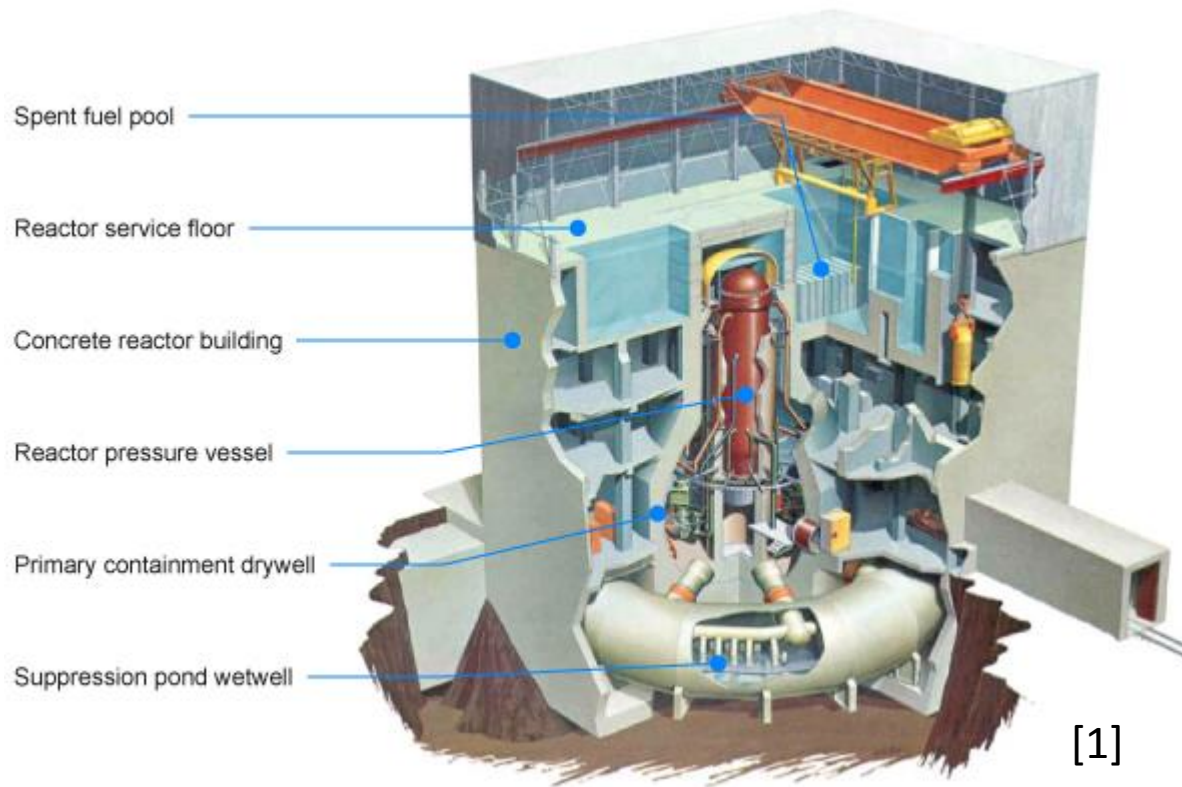
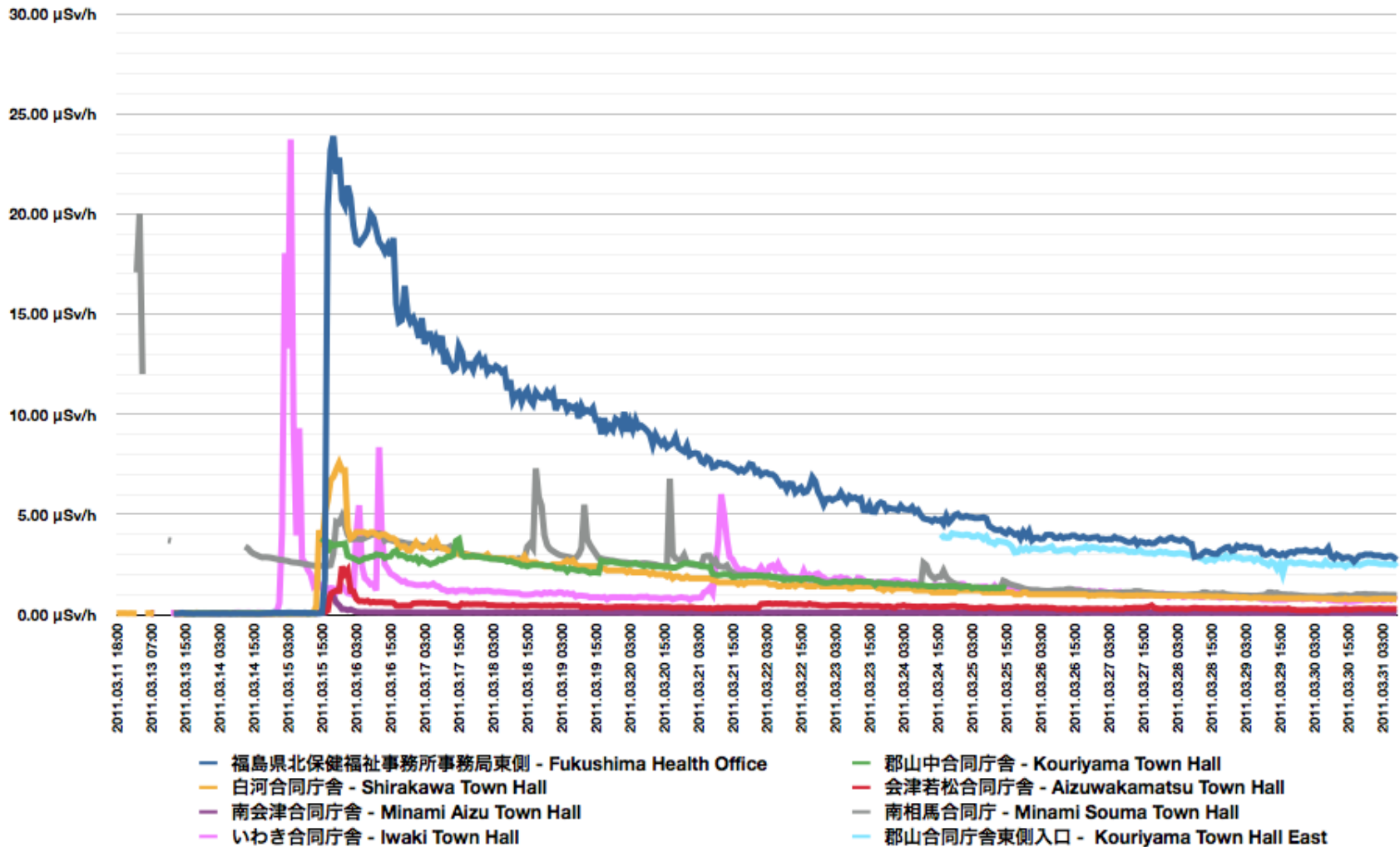


Photo Credit: Wikipedia

Fukushima Radiation Levels

福島県の放射線量 - Fukushima Prefecture Radiation Levels

2011.03.11 18:00 ~ 2011.03.31 08:00



Data from <http://www.pref.fukushima.jp/j/>

Photo Credit: Wikipedia

Long Term Effects

- Water contamination
 - Ground water
 - Ocean water
- Food contamination
- 2020 Tokyo Olympics
- Building 4

Fukushima Buildings 3 & 4



[1]

Photo Credit: Wikipedia

Disaster Prevention

- Alternate power sources
- Better containment for backup power
- Revised safety regulations
- Regular safety reviews
- Relocation
 - Lake Inawashiro
 - West coast of Japan

Fukushima Map

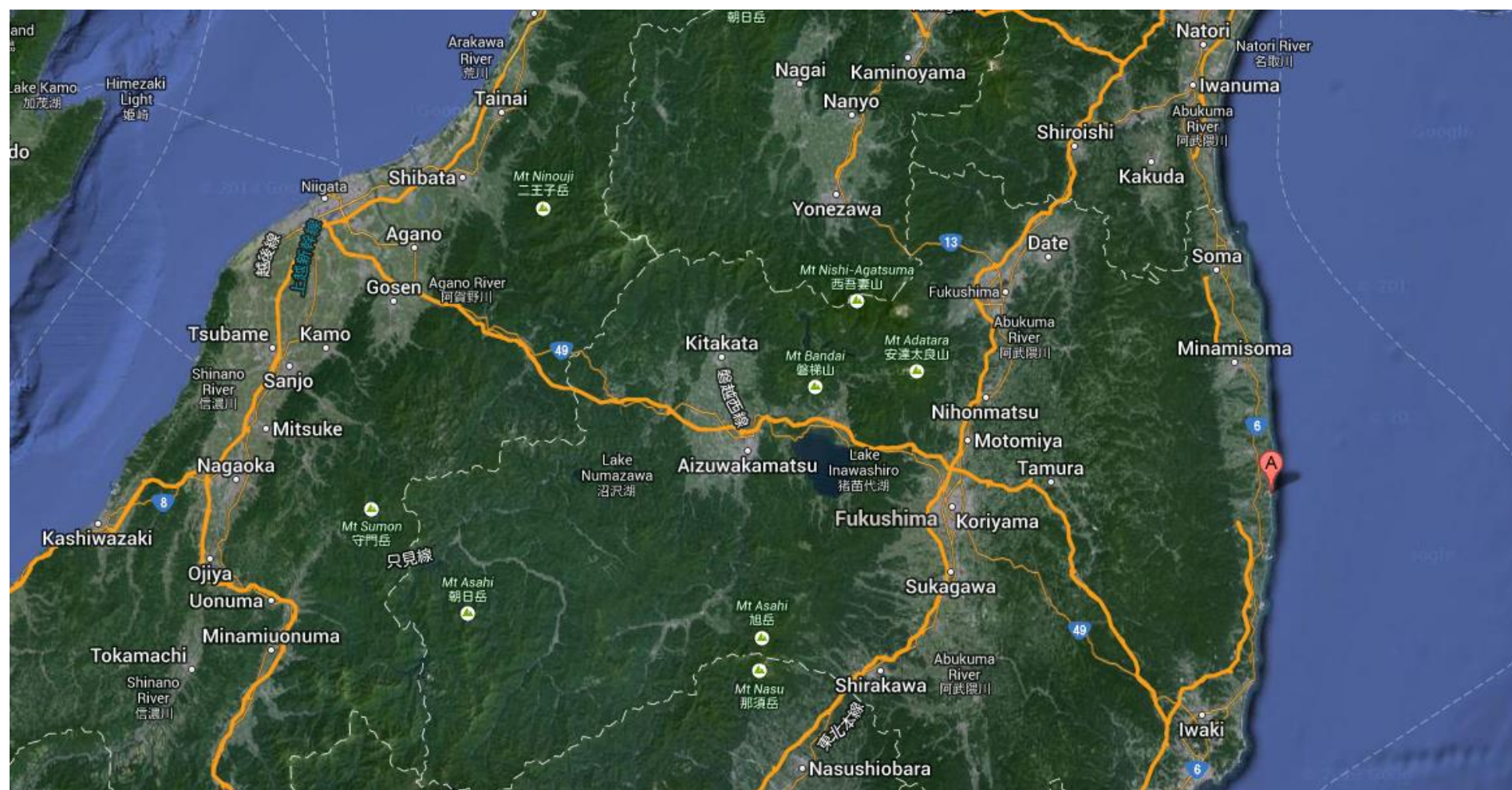


Photo Credit: Google Maps

Conclusion

- 9.0 Earthquake and resulting tsunami
- Nuclear power plant failure
- Long term effects
- Safety revisions and possible relocation

References

1. Wikipedia, “Fukushima Daiichi Nuclear Disaster,” http://en.wikipedia.org/wiki/Fukushima_Daiichi_nuclear_disaster , Sept. 15, 2013
2. National Oceanic and Atmospheric Administration, “Tsunami,” <http://www.tsunami.noaa.gov/>, Sept. 15, 2013
3. World Nuclear Association, “Fukushima Accident 2011,” <http://www.world-nuclear.org/info/Safety-and-Security/Safety-of-Plants/Fukushima-Accident-2011/#.UjcqHsZwp8E>, Sept. 15, 2013
4. Google Maps, Computer Software, 2013