Final Project

Worst Natural Disasters of this Semester

# Flooding

## Benevento, Italy Flood

**Location of the Disaster**:  Benevento, Italy

**Type of Disaster**: Flood

**Beginning date**: October 15 2015

**Ending date:**October 17 2015

**Time of the disaster:**  Storms hit Italy on Wednesday

**Disaster details:**

-          5 deaths  [1]

* 2 Elderly,
* 1 car accident from sink hole caused by the flash flood.
* 1 house collapse,
* 1 found dead in flooded basement

-          100 evacuated [1]

**Mitigation:**

You generally can’t prevent floods.  Mitigation for floods is about controlling where the water goes.[2] FEMA estimates that 4 dollars is saved for every 1 dollar spent on mitigation. [3] Levees, embankments and walls can raise the edge of the water and channel water.[2]

[1 ] <http://neurope.eu/article/deadly-floods-in-italy/>

[2] <https://en.wikipedia.org/wiki/Flood_mitigation>

[3] <http://www.portal.state.pa.us/portal/server.pt?open=512&objID=4547&&PageID=457689&mode=2>

## South Carolina Flooding

**Location of the Disaster**: South Carolina

**Type of Disaster**: Flood

**Beginning date**: Oct 2nd ish ? It started raining on Oct 1st

**Ending date:** ongoing, but it’s starting to recede.

**Time of the disaster:** Rain all day

**Disaster details:**

* 19 dead [3]
* Early estimates over 1 billion in damages [9]
* At least $300m in crop losses [1]
* 17 Failed dams [2]
* Once in a millennium floods [10]
* State of Emergency [7]
* State of Disaster declared [4]
* 250 roads closed [1]
* 27.15 inches of rain in from Oct 1 – Oct 6 at Mount Pleasant South Carolina [8]
* Possibly up to 18.71 inches of rain in a 24 hour period in White Birch Circle in Columbia, SC [8]

**Mitigation:** You generally can’t prevent floods. Mitigation for floods is about controlling where the water goes. [5] FEMA estimates that 4 dollars is saved for every 1 dollar spent on mitigation. [6] Levees, embankments and walls can raise the edge of the water and channel water.[5]

[1] - <https://www.washingtonpost.com/blogs/capital-weather-gang/wp/2015/10/08/sobering-before-and-after-pictures-show-extent-of-south-carolina-flooding/>

[2] <http://www.usnews.com/news/us/articles/2015/10/10/south-carolina-floods-leave-a-shared-sense-of-memories-lost>

[3] <http://wbt.com/death-toll-rises-from-south-carolina-flooding/>

[4] <http://www.weather.com/news/news/south-carolina-floods-news>

[5] <https://en.wikipedia.org/wiki/Flood_mitigation>

[6] What is Hazard Mitigation? <http://www.portal.state.pa.us/portal/server.pt?open=512&objID=4547&&PageID=457689&mode=2>

[7] <http://q13fox.com/2015/10/04/president-obama-declares-state-of-emergency-in-south-carolina18-inches-of-rain-falls-in-24-hours/>

[8] <http://www.weather.com/news/news/south-carolina-historic-flood-rainfall-record-extreme>

[9] <http://www.theguardian.com/us-news/2015/oct/09/south-carolina-flood-damage-horrendous-losses>

[10] <http://www.theguardian.com/us-news/2015/oct/04/south-carolina-flood-governor-nikki-haley-deaths-thousand-year>

# Mass Wasting

## Guatemala Landslide

**Location of the Disaster**: Santa Catarina, Pinula, Guatemala

**Type of Disaster**: Landslide

**Beginning date**: Oct 1

**Ending date:** Oct 1

**Time of the disaster:** Thursday night

**Disaster details:**

* + Thursday night part of a hillside collapsed and buried part of the town of Santa Catarina. It destroyed many homes, 59 people are confirmed dead and 600 people are missing with bad prospects of survival. [1]
  + 1800 soldiers, firemen and neighbors are helping with the rescue efforts. [1]
  + Some homes are buried under 50 feet of earth. [1]
  + Local government has responded with shelters and supplies for the survivors.

**Mitigation:**

They could have changed the geometry of the hillside, attempted to reduce water in the hillside, or attempted to increase the shear strength of the unstable mass. [2] I don’t know much about landslides yet, but it seems like drainage might have been the best approach here due to the humid environment

[1] http://www.reuters.com/article/2015/10/03/us-guatemala-mudslide-idUSKCN0RW1Q620151003

[2] https://en.wikipedia.org/wiki/Landslide\_mitigation

# Miscellaneous Disasters

## Valley Fire

**Location of the Disaster**: Lake, Napa, and Sonoma Counties, California, USA

**Type of Disaster**: Wildfire

**Beginning date**: Septermber 12, 2015 [1]

**Ending date:** ongoing (September 26th)

**Time of the disaster:** ongoing from beginning

**Disaster details:**

As of September 26:

* 1,958 structures destroyed, including 1280 homes, 27 multi-family structures, 66 commercial properties and 585 other minor structures. [1]
* 93 additional structures damaged, 41 homes, 7 commercial properties, 45 other minor structures [1]
* 76,067 acres burned [1]
* 4 civilian fatalities [1]
* 4 firefighters injured [1]
* No cause known [1]
* 11,668 fire personnel, 140 Fire engines, 47 fire crews, 6 helicopters, 18 dozers and 4 water tenders. [1]
* Left roughly 3,000 people homeless [2]
* Cost estimated to be in the hundreds of millions of dollars [2] No official damage assessment has been completed at this time.
* Lake County expects to lose 2.1 million in property tax revenue per year due to the fire. [2]
* The fire was so violent and fast moving that early on, firefighters stopped trying to fight the blaze and moved to evacuate communities [2]

As of October 3rd:

* Same
* Same
* Same
* Same
* Same
* Same
* 397 Fire personell, 15 fire engines, 10 fire crews, 4 helicopters, 3 dozers, 8 water tenders.
* They are in the mop up phase.
* Still no cost estimate.

**Mitigation:** Prepared evacuation plans. Education about fire safety. Many residents didn’t know they should evacuate until the fire was already on top of them despite notifications sent via reverse 911 calls. [2] Some phone lines were burned down before the emergency messages could be delivered [2]. A better emergency alert system could have helped mitigate this problem. 11,668 fire personnel, 140 Fire engines, 47 fire crews, 6 helicopters, 18 dozers and 4 water tenders attempted to contain the fire and mitigate the disaster. [1]

[1] <http://cdfdata.fire.ca.gov/incidents/incidents_details_info?incident_id=1226>

[2] <http://ww2.kqed.org/news/2015/09/13/valley-fire-forcing-residents-to-evacuate-injures-firefighters-in-lake-county>