

Leader: **Rebeka Ryvola**

Google docs note taker: ---- (determine in group)

Presenter brief summary: ---- (determine in group)

Logistics:

- Spend 5-minute max to do a quick introduction among all in your group (name, what institute do you work for)
- Determine who takes notes and who will present a summary of the outcome of this breakout this afternoon.
- Make small subgroups (3-5 people) and answer each of the questions below. Take for each question ~15-20 minutes in your small subgroup and brief back to larger breakout group (~3-5min each subgroup) for the note taker to capture into google doc.

TASKS - FLOOD EXPOSURE

Flood hazard exposure describes who and what may be harmed by a flood - so where do floods occur and what exists in those areas? To better understand what is available, useful, or missing, we would like to get your opinion on the following:

Present:

- Albert Slap, Coastal Risk.
- Ruth Dittrich, University of Portland. Climate Change adaptation, uncertainty, infrastructure.
- Julia, University of Bologna, Italy.
- Anna Braswell, CU. How coastlines will
- Albert Kettner, CU, Dartmouth Flood Observatory.
- Katy Serafin, Stanford post doc. Flood Hazards, compounding flooding.
- Elke Verbeeten, African Risk Capacity. Index Based Insurance. Amsterdam

1. What are the current products out there that help assessing flood exposure?

[PUT NOTES HERE] www.floodscores.com is available online to individuals, businesses and governments.

- **FEMA/HAZUS** (1 in 100 years 1 in 500 years)
- **USGS HERA** (CA; <https://www.usgs.gov/apps/hera/>)
- **Floodscores.com**: Product for every property in US and territories. 4 natural hazards, cooling, heat stress, drought. Individual property level. Commercial level coming up too. ESRI, Arcview tools 1-3 m resolution
 - Work pre-disaster
 - Need to work bottom up too, because top down action is not reliable.
 - Floodscores considers 4 (riverine, precipitation, storm surge, king tides) hazards, looks at them individually. Gets at why people do not take action even when they have good information about risk
 - Have products that do and don't look into the future.
 - Virtual elevation calculation
- Government data in some parts of the world isn't shared
- [Global Surface Water Explorer](#)

2. What flood exposure products are currently available to the community?

[PUT NOTES HERE] www.floodscores.com is available to the communities in the US

- **FEMA/HAZUS** (1 in 100 years 1 in 500 years)
- **USGS HERA** (CA; <https://www.usgs.gov/apps/hera/>)
- **Floodscores.com** (commercial product)
- **African Risk Capacity**
- Early warning systems for river flooding (Red Cross)

3. Where do we need to make improvements on flood exposure products?

[PUT NOTES HERE] internationally, there isn't much available and no online products and services to speak of

- Not high resolution enough
- Ground truthing challenges
- Elevation data challenges - digital elevation models to be updated?
- Accurate land use classification
- Stating assumptions of model clearly
- Changing datasets out to match new conditions. We work with static data that is oftentimes not updates. Possible to update these old datasets?
- Create a global baseline of relevant data
- More collaboration between private, non profit, etc
- Higher resolution bathymetry data
- More easy, rapid access to relevant data
- Scalability of data? At what level does understanding exposure make sense?
- Add other variables to flood modeling, besides where flooding occurs (e.g., depth, velocity)
- Understanding the relative uncertainties across all variables (topography, flood maps, who's there, socioeconomic data, demographics) and what affects exposure
- Manmade infrastructure needs to be a separate layer of information. (also how natural elements can weaken/how they interact with this manmade infrastructure. (The Levee Effect)

4. Can we learn from existing flood exposure products that are available for an area but not regional / continental or available in the world? **In other words, what are success stories when it comes to Flood Exposure?**

[PUT NOTES HERE] www.floodscores.com is a success story in the US. We are trying to go global with it, now. <https://floodscores.com/coastal-risk-in-the-news>.

- US private sector has property-scale - individuals can prepare themselves
- Elbe River, Germany: 2003, 2009 flooding losses less in 2nd round of flooding
- Netherlands, giving space to river instead of channelization
- Forecast-based financing in Togo (Red Cross Climate Centre)
- Red Cross Togo dam level forecast based financing
- Lisflood- flooding in Australia ~ 2015/2016: Mapping flood extent after the fact.
- Zambezi flooding: another after-the-fact flood extent.
- **Harvey:**

High level:

- A lot of uncertainty

- Not a lot of products that can be used outside of local level. A lot of global data not specific enough for local level. What type of scale is useful?
- Exposure to developing countries
- What is more desirable: updated, older datasets, versus new innovative approaches for data collection?
- Difficulty of gathering info on growing informal settlements?
- Flooding exposure at a global scale