

Floods in Italy.

A comparative study of risk learning in local public institutions

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Summary

1. Research design
 2. Case identification
 3. Case literature
 4. Interview grid (analysis dimensions)
 5. Types of respondents
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The RETURN Research Partnership

RETURN (Multi-risk science for resilient communities under a changing climate) is an extended partnership between twelve Italian universities and other national technical-scientific and industrial partners.

The object of the partnership is the redefinition of policies and knowledge on multi-risk management in the heterogeneous Italian landscape.

The research is financed within the framework of the PNRR, National Programme for Recovery and Resilience



Research design



Subject: Comparative analysis of contexts that have dealt with flood risk management following extreme rainfall



Objective: Identify institutional factors (governance tools, resources, social capital, etc.) and action schemes that impact risk learning capacity in local contexts.



Method: Most Similar System Design (MSSD) among case studies. Selection of similar cases based on the fundamental characteristics of the urban fabric (metropolitan city/risk exposure) but with potentially different outcomes from the perspective of learning practices.



Expected Result: A set of good/bad practices to be compared with those emerging in the activity of selecting and characterizing indicators and with those that will emerge from the storylines.

Theory of Organizational Learning (Levitt and March, 1988)

- An organisation learns when: It institutionalises rules, practices and beliefs (routines) by adopting a logic of appropriateness and legitimacy, whereby these are considered 'right' or 'necessary', and thus become stable; I
- Institutionalisation almost never stems from purely cognitive learning, but experiential learning (one's own, of neighbouring organisations, through simulations - simulations);
- The institutionalisation of routines occurs on the basis of objectives that the organisation sets itself to achieve

Learning in the local public actor

A) Focus on cognitive processes:

- Criteria for identifying risks;
- Changes in the ability to prevent/anticipate events;
- Skills empowerment processes in techno-scientific and/or socio-political and cultural fields;

B) Focus on organisational processes

- Changes in emergency governance (composition of steering committee, ways of communicating/collaborating with other agencies and organisation)
- Changes in the processes of involvement/participation of the population and/or civil society;

c) Focus on actions (eye on infrastructure)

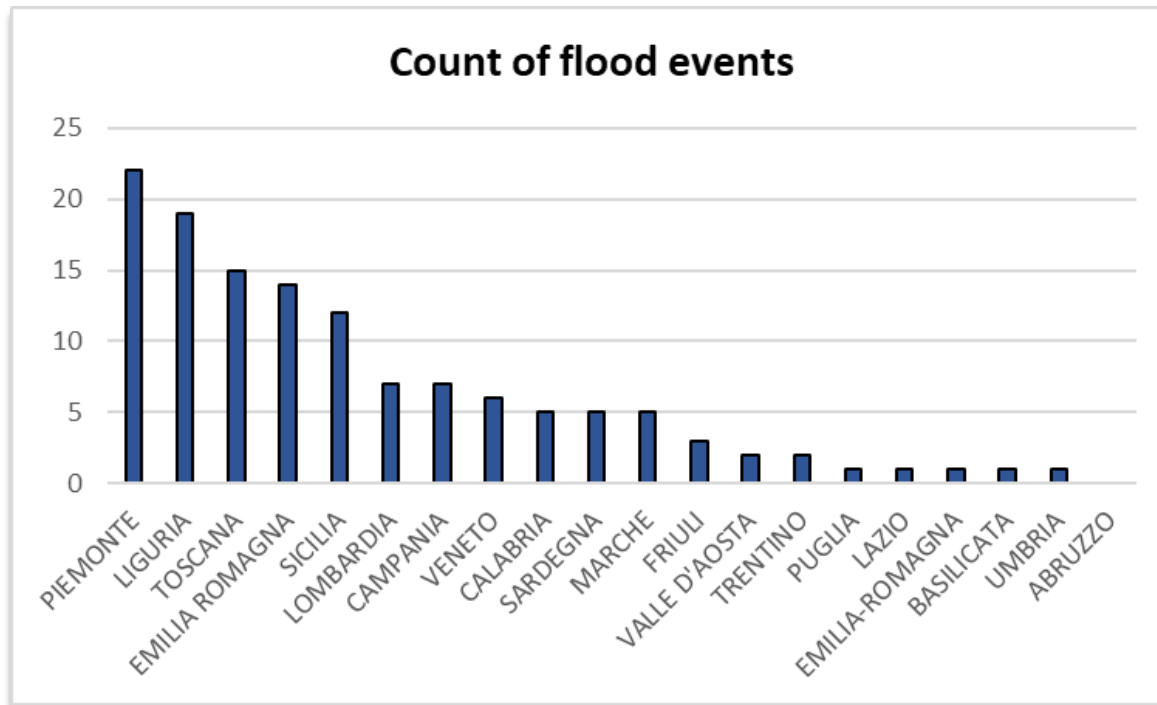
- Planned and implemented interventions: municipal and regional planning, funding sources, reference models, actors involved;
- Effectiveness of interventions: presence of techno-scientific assessment, perception of experts and beneficiaries;
- Interventions planned but not implemented: investigation into the 'good reasons' for non-intervention;



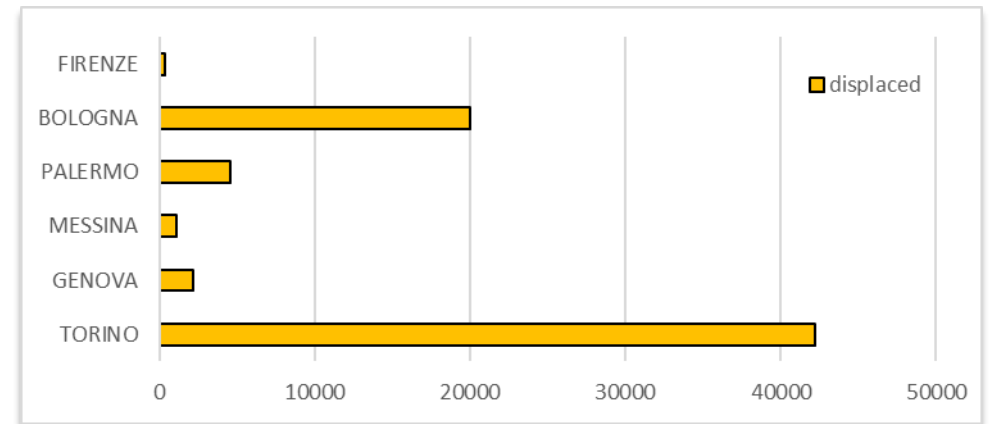
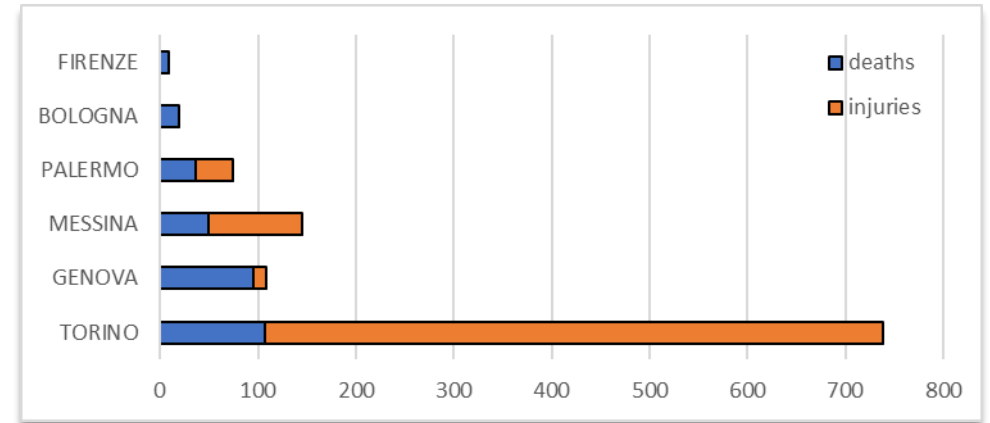
Case identification

- Unit of Analysis: Metropolitan Cities in Italy
 - Count of events from 1970 to the present: focusing on the month when the event occurred;
 - Count of deaths, injuries, displaced persons, and other severity indicators
 - Counterfactual verification: Analysis of cumulative rainfall per month (data requested from ISPRA)
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Case identification



Overall toll of people affected



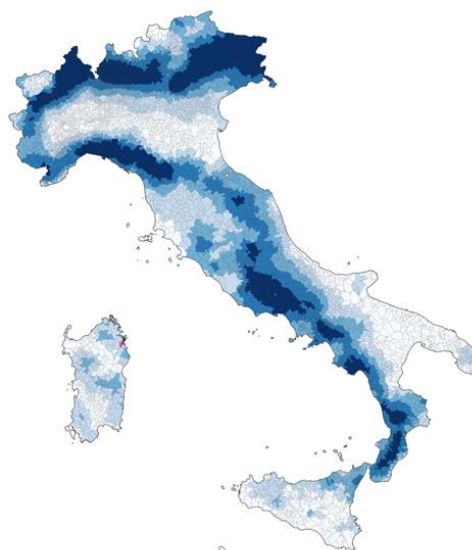
Case identification

Monthly cumulative rainfall by municipality:
average monthly values from 2012 to 2022

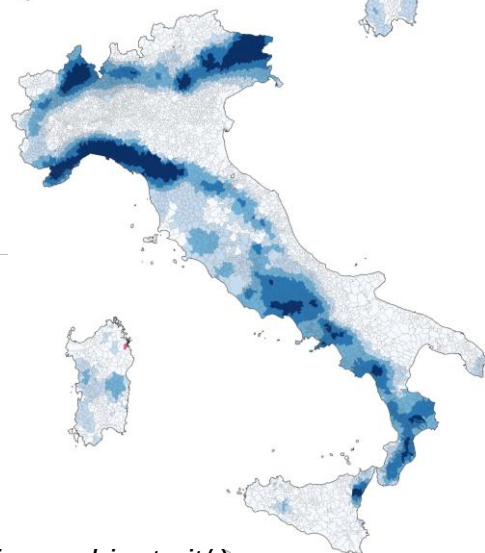
October



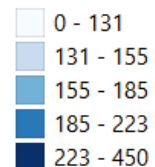
September



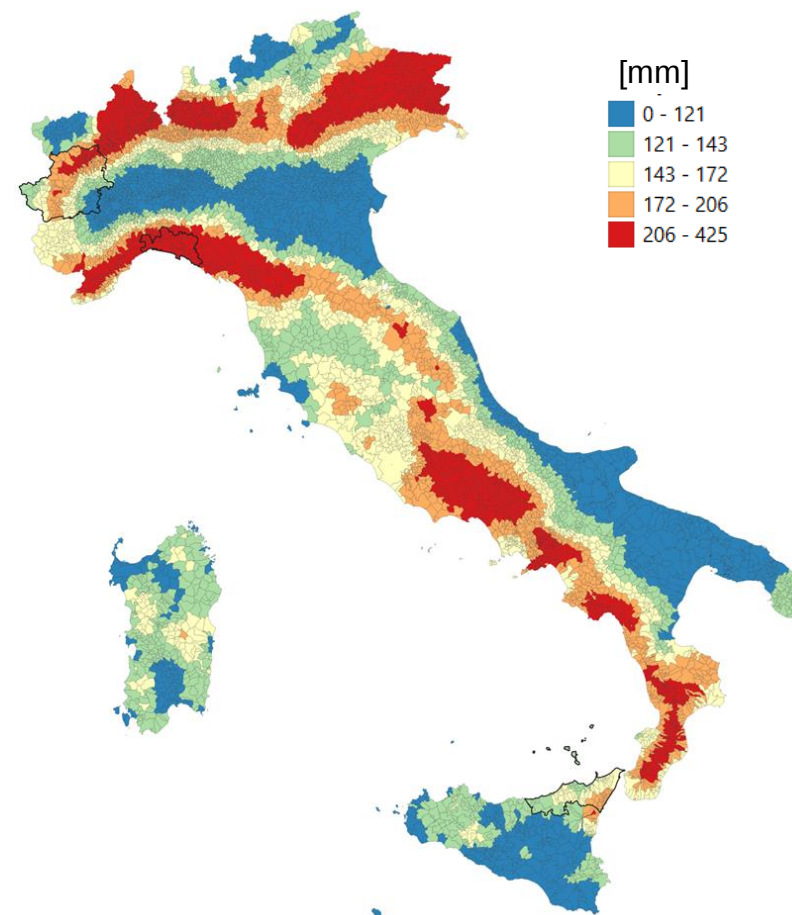
November



[mm]



Average cumulative rainfall by municipality: average
value over the months of September, October and
November in the decade 2012-2022



Case Studies: Genoa, Messina and Turin

Main events:

- 7 October 1970
- 6-8 October 1977
- 27 September 1992
- 23 September 1993
- 13,17 October 2000
- 25 October 2007
- 1 October 2009
- 04 October 2010
- 4 November 2011
- 9-10 October 2014



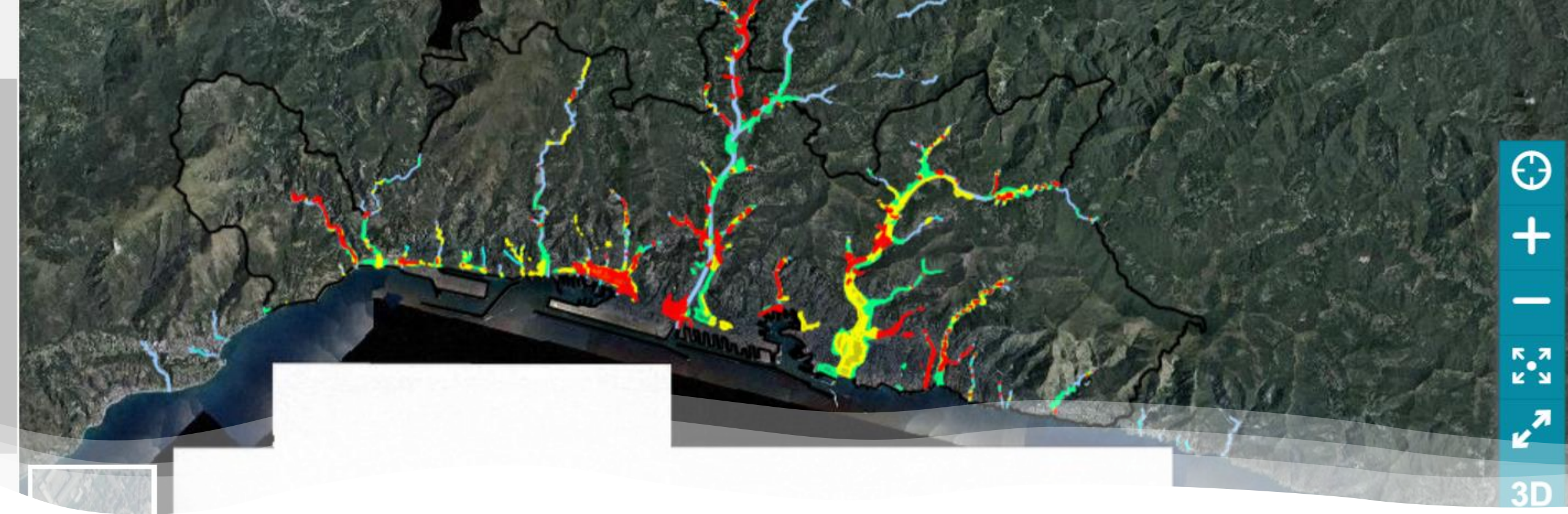
Similar cases

- Metropolitan Cities by the sea
- Although Genoa and Turin are richer and more industrialised city, in the districts with the highest exposure to flood risk, their socio-economic conditions overlap with those of Messina
- Increased cumulative rainfall, especially in the autumn months;
- Presence of rivers in the urban context;
- Presence of an established hydrogeological risk and deforestation on the mountainous terrain near the city;
- Urban sprawl near catchment areas and river banks;
- Covering and channelling of watercourses with lower than expected flow rates;
- Lack of validated procedures and tools for communicating the emergency to the population.



Questions

- What implications did these events have for learning in risk management?
 - Is there a correspondence between the competences, skills and actions deployed in Genoa, Turin and Messina?
 - Is there a correspondence between competences, skills and actions between the cases and those that emerge as good practices in the analysis of the indicators?
 - What explains the correspondences, and what the divergences?
 - How do we 'de-situate' practices that are 'good' in relation to territorial contexts, and how do we 'de-model' those that are more abstract resulting from indicators?
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Genoa Case Study

- A city of about 600,000 inhabitants, crossed by dozens of watercourses, including two large streams (Polcevera and Bisagno).
- Eleven significant flooding episodes, i.e. with victims and considerable damage to property and landscape, since 1970, of which 6 since 1990;
- Focus on the learning activities after 2011 (6 deaths) and 2014 episodes (1 death);

Thematic clusters in the literature

1. Identification of causes, with particular reference to anthropic/organisational ones;
2. Identification of possible future solutions, especially in the area of technology/infrastructure;
3. Analysis of risk perception in the population after events, also in relation to communication and media processes;
4. Study of processes of citizen participation, conflict and involvement in emergency prevention and management;

First Results: Many changes after 2011

The flood of 2011 was a turning point, because: i) after, almost each year an episode of flood in the city; ii) Six victims, including five children who died in the lobby of an apartment block, shocked the local public; iii) Criminal conviction of the former mayor and other officials for failures in prevention.

Tendency towards technological and infrastructural solutions. All that is needed to reduce risk is to carry out major works (which are too expensive and slow to be really effective). More investment and focus on training, awareness, citizen participation.

Evidence of a problem of trust in institutions, not only political but also scientific. In particular, there is mistrust of the performativity of these institutions: they may be right (to signal risks), but the preventive or corrective measures they propose are not considered useful or feasible.

First Results: mainly organizational and cognitive innovations

Cognitive processes: Introduction of the colour alert system; door-to-door census of the most vulnerable users who have to leave their homes in the event of an orange or red alert; communication campaign in partnership with the University of Genoa for six different hazards (floods, heat waves, earthquakes, etc...);

Organisational processes: Establishment of the COC and adoption of the Augustus method; reinforcement of the municipal civil protection office and funding for associations;

Implementation processes: Realisation of the Ferreggiano spillway, tender for the Bisagno spillway (Financial and administrative problems to start work...);



Types of actors to interview

Three “Ecosystems of Actors”

- **Decision:** Current local administrators and/or those in office during the events (consult civil engineers)
 - **Production of Knowledge:** Experts involved in risk reduction policy processes; Academics;
 - **Application and Transfer of Knowledge:** Representatives of organised civil society involved in policy processes (trade, voluntary, environmental associations etc.); Grassroots, local committees; Journalists and observers of the local context
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