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The MAGIC research team worked across three different coastal contexts in South Africa, United Kingdom and France. We investigated on the stakeholders' mind-sets about risk associated with climate change and adaptation. The aim was to test through a comparative approach how connectedness between people, and their connectedness with coastal ecosystems, indeed shape people awareness and risk perceptions and influence the way they frame adaptations. This has important consequences for the responses they then implement. Different methods were used to study: - How administration, technicians, elected people and managers frame adaptation to climate change in coastal areas. Interviews were conducted at institutional levels. Two opposing frames emerged across the three different sites: the command and control VS living with the risk frames. On one hand nature is considered as hostile and actions need to be taken to control the risk. On the other hand the variability of nature is accepted and the focus is on actions to reduce the consequences of this variability. - How relationship with place may shape experience of risk in contexts where a variety of groups show contrasted attachment to place. Environmental psychologists have developed several concepts - place meaning, place attachment, sense of place - to study people's relationship with place and have demonstrated that relationship with place influences attitudes and place related behaviors. We conducted extensive survey at each place and found that groups that hold different types of attachment are more sensitive to particular risks and types of adaptations. To conclude we describe these results through a typology of the environmental stewardship approaches which distinguishes 4 main types of stewardship (reformist, adaptive, sustainability and transformative stewardship). This presentation will be complemented with speed talks which focus on the different methods we used.

Contributed session oral presentation:

Facing global changes with resource over-appropriation and under-provision of public services: Exploring robustness-fragility trade-offs in three coastal areas

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Coastal systems are special cases of coupled infrastructure systems (CIS). Here, system fragilities that exist elsewhere are magnified due to the unique features of the coastal natural infrastructure which exhibits a concentration of resource scarcity within a densely linked CIS in the vicinity of several key thresholds (e.g., salt vs freshwater). Accordingly, coastal regions warrant special attention and can provide early insights into other systems of intertwined human and natural infrastructure. In order to better understand the characteristics of such CIS, existing common pool resource (CPR) theories and methodologies were applied to the comparative analysis of coastal vulnerability to global change in three regions: Cornwall, Britain; Languedoc, France; and Eden District, South Africa. Utilizing an interdisciplinary, collaborative approach, we iteratively "translated" local research findings from the three systems into the Robustness Framework and applied the design principles of long-enduring CPR governance systems before comparing the outcomes. We found that: (1) the density of

connections in the coastal systems magnified unintended consequences of poorly coordinated rules (e.g., rules governing coastal development, environmental protection, watershed management, etc.) which often pursue disparate goals; (2) a devolution of authority from the national to the local level coupled with government austerity measures is limiting the ability of local governments to mitigate the effects of climate change, and is fostering an under-provisioning of public soft infrastructure; and (3) short-term political agendas are favoring the production of large-scale hard infrastructure projects over long-term mitigation/adaptation strategies. These three characteristics inhibited institutional robustness, magnified CIS fragilities, and caused vulnerability transfers. We argue that our iterative and transdisciplinary comparative approach provides insights into key features of complex coastal CIS which may be useful to the examination and understanding of other densely linked systems.

Contributed session oral presentation:

Maladaptation: inescapable or preventable?

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Vulnerability in social-ecological systems might be transferred through maladaptation, disconnectedness, risk perceptions and place attachment. But what are the traits of maladaptation? Is it possible to develop a typology of maladaptation based on the outcomes? And how can the unintended consequences due to maladaptation be avoided? We compiled a database of maladaptation that transferred vulnerability, based on our research on coastal vulnerability in three case studies in Cornwall (UK); Languedoc-Roussillon (France) and Eden (South Africa). We included information about a) description of the adaptation; b) who is pursuing the adaptation; c) the intended goal of the adaptation and d) unintended consequence; e) who / what bore the consequences; and e) the root cause(s). We then inductively developed a typology of maladaptation and its consequences using several iterations of inspection, classification, consensus seeking and re-classification. The ultimate driver of maladaptation is partiality: partial participation of knowledge-holders; partial incorporation of knowledge through e.g. considering only single disciplines or sectors; incomplete spatial perspectives; and incomplete temporal perspectives. This results in misdirected policies (soft infrastructure), and misemployed hard infrastructure. Maladaptation can be typified by win-win consequences (everyone gains); lose-lose (everyone is worse off); spatial win-lose (actors at one scale or place gain while actors at another scale or place are worse off); temporal win-lose (present actors gain while future actors are worse off). A diagram depicts the different dimensions and nuances of maladaptation. Maladaptation can be avoided by considering broader spatial, temporal and social scales; bearing plausible futures in mind; listening to more knowledge holders; collaborating across disciplines and sectors; thinking about the long term social and ecological consequences. These findings may assist researchers in exploring the nuances of adaptation and maladaptation and help practitioners and policy makers become more aware of the unintended consequences of their decisions for people and ecosystems.

Contributed session oral presentation:

How global change challenge coordination amongst action situations in coastal systems: a case study from Languedoc, France.