The triple instationarity – a challenge for implementing adaptation.

For designing and implementing measures for adapting to the challenges and possibilities of changing climate, ideally states of expected future geophysical changes, the certainty and limitations of presently available knowledge about the expected change, and availability of emerging future technologies and management options are needed. Whereas scenarios of possible future change are readily available. However, the knowledge about certainty and future options is hardly available at the present time. Instead, we know that the state of the geophysical system, the knowledge about it, and the options for dealing with this change are continuously changing – all three systems are instationary and will remain so for the foreseeable future.

Thus, any decision about adaptive measures need to take these instationarities into account. In most cases it will be advantages to take a decision as late as possible, so to optimize the knowledge about certainty of geophysical perspectives and advancement of technological and managerial options. On the other hand, planning must decide for which time window the measures are meant. Any near-term implementation should allow for future improvements, such as additional fortification, even if the local conditions have been modified for other purposes. Finally, early consultation processes with stakeholders will allow for better acceptance of implementing and later on modifying measures – but also perceptions and preferences among stakeholders may be instationary as well.

The problem is discussed and illustrated with examples of coastal defense and urban planning.