

GOTHAM: Globally Observed Teleconnections and their role and representation in Hierarchies of Atmospheric Models

Call: Climate Predictability and Inter-Regional Linkages

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GOTHAM represents an ambitious research programme to gain robust, relevant and transferable knowledge of past and present day patterns and trends of regional climate extremes and variability of vulnerable areas identified by the IPCC, including the tropics and high-latitudes. It will achieve this by identifying the influence of remote drivers, or teleconnections, on regional climate variability, and assessing their relative impact. It will also assess the potential for improved season-decadal prediction using a combination of contemporary climate models, citizen-science computing and advanced statistical analysis tools. GOTHAM has the direct backing of many international weather and climate research centres, and will lead to the improved development of seasonal-decadal forecasts at the regional level. The improved knowledge and understanding of dynamical factors that influence regional weather and climate in the tropics/sub-tropics, and polar regions, will directly feed through to weather and climate forecast services to assist in their decisions on which priority areas of their model development to target in order to improve forecast skills. For example, GOTHAM will advise whether a model is missing or misrepresenting important global teleconnections that significantly influence regional climate in identified vulnerable regions. These impacts will be achieved through regular meetings with GOTHAM investigator groups and their extended collaborative networks, and extensive involvement in wider science and science-policy programmes with co-aligned strategies, such as the core projects within the WCRP. Improved seasonal to decadal scale forecasts will improve predictions of extreme events and natural hazard risks such as flooding

that can have devastating impact on society. There is real potential for project results feeding through to impacts-related research, such as those involved in hydrological and flood forecast modeling, and these will be explored in liaison with identified partners in Asia and Europe.