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Venezia



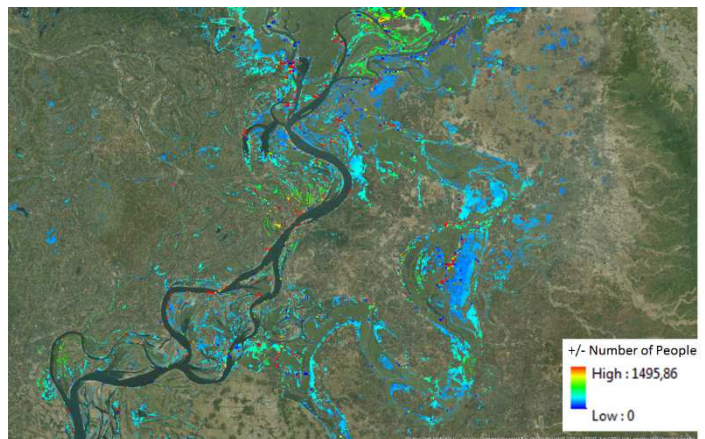
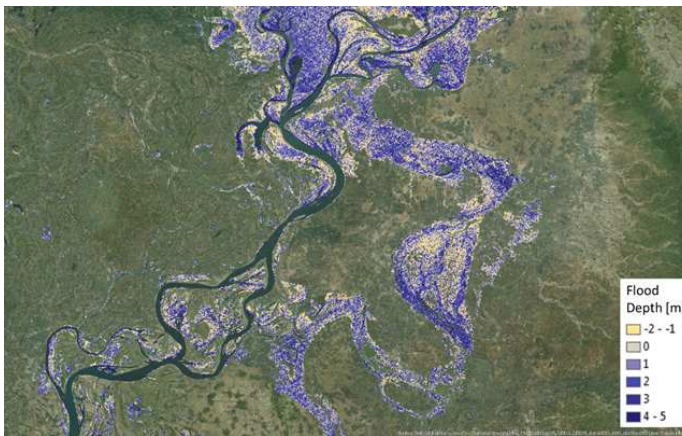
Science of
Complexity

Seminar on

New Avenues in Territorial Studies: The Human dimension of Earth Observations

Thursday 2 November 2017, 10.30 am – 1.30pm

Campus Scientifico Via Torino, Aula Orio Zanetto



10.30 Introduction to the seminar, **Carlo Giupponi, Ca' Foscari University**

10.45 Google Earth Engine, **Noel Gorelick, Google**

This talk will:

- present an overview of the Google Earth Engine platform,
- explain how it is being used to help solve some of the world's biggest challenges such as deforestation, disease, disasters & drought,
- and demonstrate how you can get started using it for your own research.

Google Earth Engine is a cloud platform designed for processing immense quantities of remote sensing data. It provides planetary-scale processing capabilities, co-located with more than 5PB of geo-spatial data including the entire 40-year archive of Landsat data, 14 years of MODIS dailies and derived products, all of the Sentinel-1 images and many other environmental, geophysical and climatological datasets, all processed to an analysis-ready form. Earth Engine makes it easy to explore, analyze and combine entire data collections in ways that have never been possible before, including both full-temporal stack and cross-sensor analysis.

Noel Gorelick has been a software engineer at Google for 8 years. During that time, he has worked on a number of big-data analysis and visualization projects. He is the author of Google Moon & Google Mars and a founder of the Google Earth Engine project. Prior to Google he helped launch 7 interplanetary spacecraft to 2 planets and 1 moon.

11.30 Monitoring Flood Impacts on Population and Infrastructure Using Earth Observation Big Data, **Pietro Ceccato, Columbia University**, and **Fabio Cian, Ca' Foscari University**

Developing economies face significant challenges in responding to disasters such as floods. The effects can be devastating, and the nature of the peril highly unpredictable. Climate change and resulting hydro-meteorological conditions can cause large variations in risk from sea level rise, extreme precipitations and increased vulnerability. The limited ability of governments to rapidly allocate funds for effective response immediately after disasters is a potential bottleneck of high consequence.

Financed by the Rockefeller Foundation and the World Bank, this study aimed at defining a methodology for the rapid assessment of flood response costs at a national scale in South East Asia (illustrated through Bangladesh and Thailand). The approach is based on the characterization of flood severity (extent and depth of water) based on the processing of a large number of satellite images, and the characterization of exposed people using different population datasets. This project specifically addressed the quantification of uncertainties to help understanding the applicability and limitations of the results produced.

Pietro Ceccato, *Research Scientist at the International Research Institute for Climate and Society, Columbia University, New York*, is an agronomist and soil science scientist with a PhD in remote sensing. He has extensive experience in working with local communities in Africa to improve agricultural practices. He developed remote sensing products to monitor active fires and vegetation status. He worked at the European Commission Joint Research Centre (Ispra, Italy), the UN Food and Agriculture Organization in Rome and then he joined the Columbia IRI in 2004. His current research activities include the development and integration of environmental remote sensing products into early warning systems for human health, agriculture, pest management and natural disasters

Fabio Cian, *PostDoc Researcher, Department of Economics. Università Ca' Foscari di Venezia*. Fabio Cian is a space engineer specialized in Earth Observation. He obtained a PhD in science and management of climate change with a research on flood risk assessment based on remote sensing products. He worked at the European Space Agency and the German Aerospace Centre on flood mapping, radar interferometry for land deformation analysis and on planning of future Earth Observation mission. His current research includes the exploitation of remote sensing products for socio-economic studies, flood risk assessment and land deformation monitoring for coastal risk assessment.

12.30 Discussion

13.00 Conclusions. Broadening the perspective: Space for SDGs.

Anilkumar Dave, Italian Space Agency

Anilkumar Dave, Head of Unit "Innovation and Transfer of Technologies" at the Italian Space Agency (ASI). Image processing and cybernetics background by education, after several assignments on ICT projects between Italy and India (Textile/Clothing/Fashion, Banking, etc) he started working on European Commission projects (ie FP5-...-H2020) representing public and private bodies focusing Technology Transfer and interaction between Research and Industry. After being an officer for an Italian Government he spent 10 years as Head of "Research, Technology Transfer and International projects" Unit for the largest innovation agency in Italy helping companies being more innovative, accessing public funds and launching new products. In the past, he served also as Advisor on Indian business development, on Strategy for Research organisations and as Fundraising Consultant