Can drought and flood hazards be skillfully and robustly assessed at fine spatial resolution in Maldives and Sri Lanka?

Foundation for Environment, Climate, and Technology [FECT]; Maldives Meteorological Services [MMS]; NASA's Goddard Space Flight Center [GSFC]; Maldives National University [MNU]; University of Peradeniya [UoP]; Ministry of Disaster Management. Sponsors: US National Academy of Sciences and USAID.

Summary: Current drought and flood disaster hazard estimations do not combine separate indicators from models, observations, and remote sensing into an overall assessment or provide a way to cope with shortfalls in data in real time; we hope to implement a hazard analysis framework for combining multiple terrestrial indicators from satellite observations and climate/hydrological model simulations to assess hazard risks and impacts of climate variability. Thes assessments shall be evaluated for utility in decision support for disaster management.

Duration: 2015-2018

Goal - To develop operational drought, flood and landslide hazard assessments using climate, terrestrial and societal information and to assess drought, flood and landslide risk more reliably in Sri Lanka and the Maldives.

Objectives
- Engage with **Key stakeholders** for guidance and effectiveness
- Develop **Data resources**
- Develop **Historical hazard indices** for Sri Lanka and Maldives
- Develop indices to **Assess multiple methodologies for hazard estimation** using available data
- **Assess vulnerability and resilience** for the different hazards
- **Assess predictions from satellite and model predictions** to cast hazards in advance
- **Develop multivariate hazard estimation methodology** for prediction
- **Diagnose physical underpinnings of differences of multivariate indices** to improve skills
- **Capacity building** through improving research infrastructure and training for research students
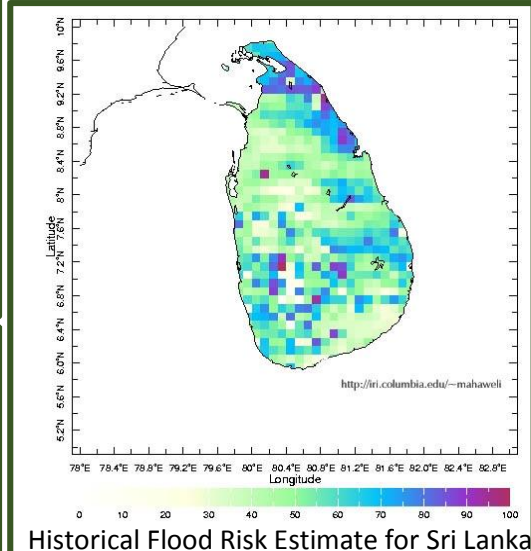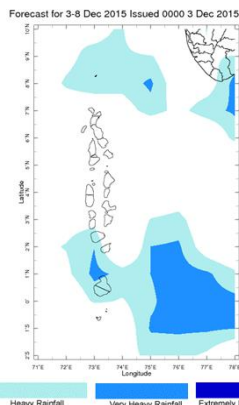
Anticipated Development Outcomes
- Improved risk management and policy making
- Use of advanced climate information
- Generation & application of near-term climate change information
- Development of expertise in application of near-term climate change information
- Training of undergraduates, researchers, disaster managers.
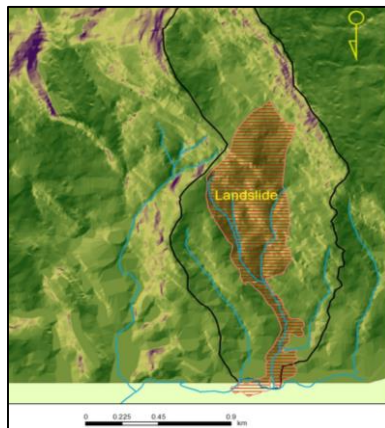
What has been done?

I. *Climate Analysis &* **Tools** *– Progress*
- Compilation of climate predictions
- Ongoing weekly & monthly dissemination of climate reports
- Developed tools for drought monitoring from satellite data and drought indices

Historical Flood Risk Estimate for Sri Lanka

Forecast for 3-8 Dec 2015 Issued 0000 3 Dec 2015

Heavy Rainfall   Very Heavy Rainfall   Extremely Heavy Rainfall

Extreme Rainfall Prediction for Maldives, 2016

Landslides in Aranayaka, Sri Lanka,

III. Dissemination and Training

- Conference contribution
- Training of junior scientists
- Conducting University lectures at UoP Sri Lanka & MNU Maldives
- Web & social media dissemination of products
- Workshops, Media outreach
- Communication strategy for Maldives

IV. Case Studies

Left: 2016 Flood in Akurana, Sri Lanka

Right: Prof. Wickramagamage (PI – 2nd from left) and FECT scientists at Aranayake Landslide location, July 2016

Contact Information

Foundation for Environment, Climate, and Technology,
c/o Mahaweli Authority of Sri Lanka, Digana Village,Rajawella, Sri Lanka.
Phone: +94-81-2376746, 4922992
Web: www.tropicalclimate.org/maldives, www.climate.lk

Team
Principal Investigator
P. Wickramagamage, (FECT)

Co-PIs
Dr. Lareef Zubair (FECT)
*Dr. Zahid (**MMS**)*

Investigators
Ms. Majeeda Mohamed – MNU
Mr. Sanjaya Ratnayake – MASL
Ms. Zeenas Yahiya - FECT

FECT Team
Mr. Prabodha Agalawatte
Mr. Janan Visvanathan
Ms. Udara Ratnayake
Ms. Ruchira Lokuhetti
Mr. Shashini Ratnayake
Ms. K. Shobana
Ms. Rimza Zacky
Ms. Aishath Afaaf (UoP)

Partners:
MNU
Dr. Mizna Mohamed

NASA-GFSC
Dr. Randall Koster

Project Websites
http://www.climate.lk/hazards_climate
http://www.tropicalclimate.org/maldives

Climate Advisories
http://fectmv.blogspot.com
http://fectsl.blogspot.com

Email: climate@sltnet.lk
fectsl@gmail.com
fectmv@gmail.com
info@tropicalclimate.org

Twitter
https://twitter.com/fectmv
https://twitter.com/fectlk

Facebook
https://facebook.com/fectmv
https://facebook.com/fectsl

Fig