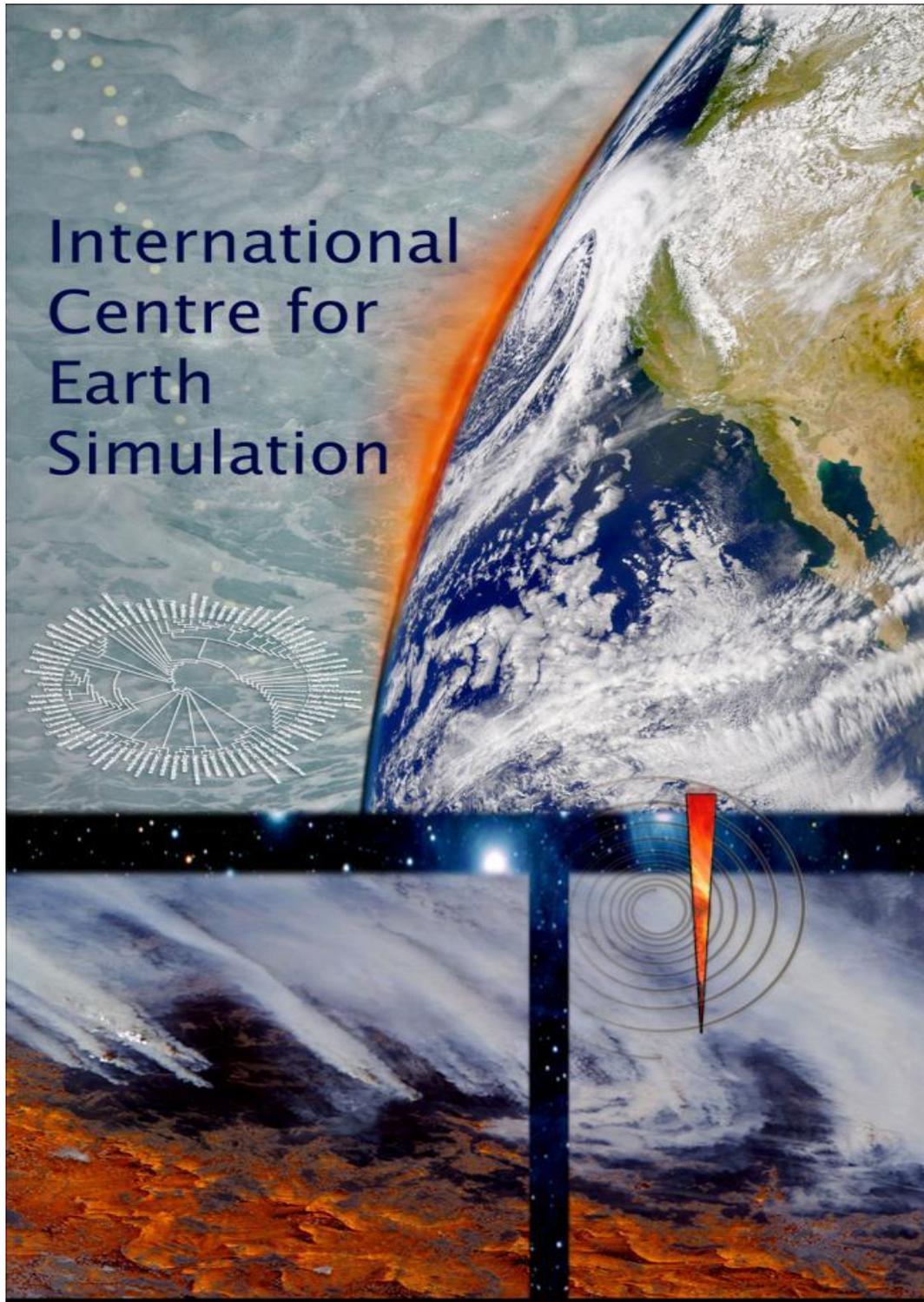# Trieste – an ICES Introduction
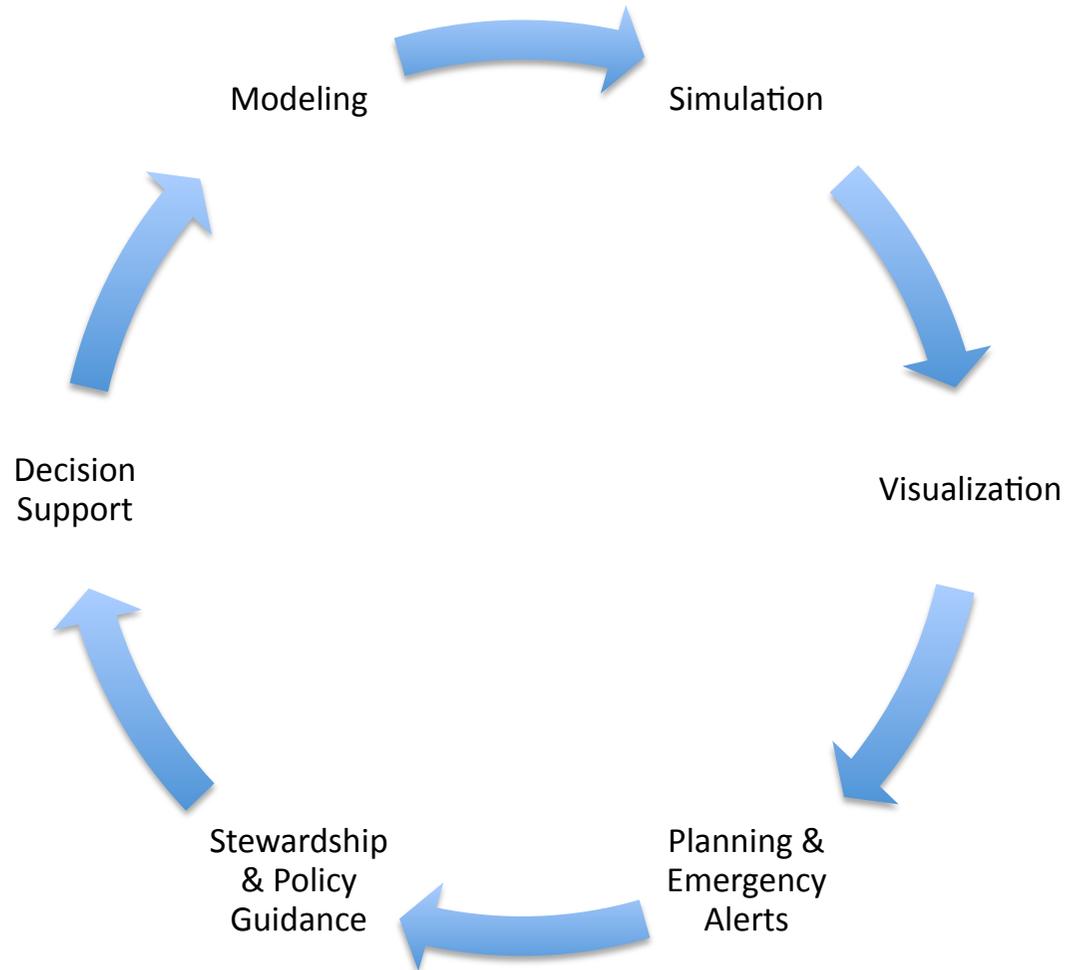
31.07.2017

Bob Bishop

President & Founder

ICES Foundation

Geneva, Switzerland
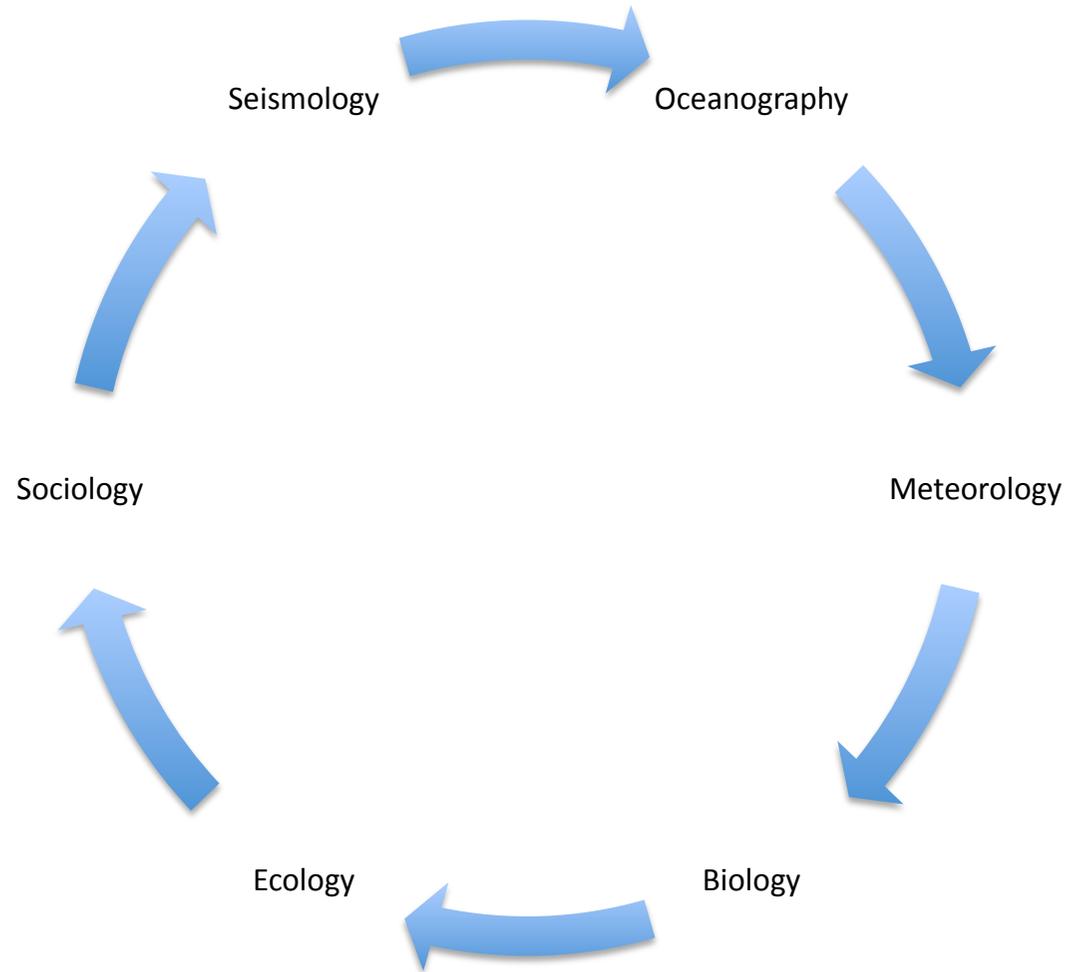
Holistic Integration

Modeling

Simulation

Visualization

Planning & Emergency Alerts

Stewardship & Policy Guidance

Decision Support

Working with Complexity

Everything moving

Everything connected

Everything networked

Everything transforming

Everything co-evolving

Everything non-linear
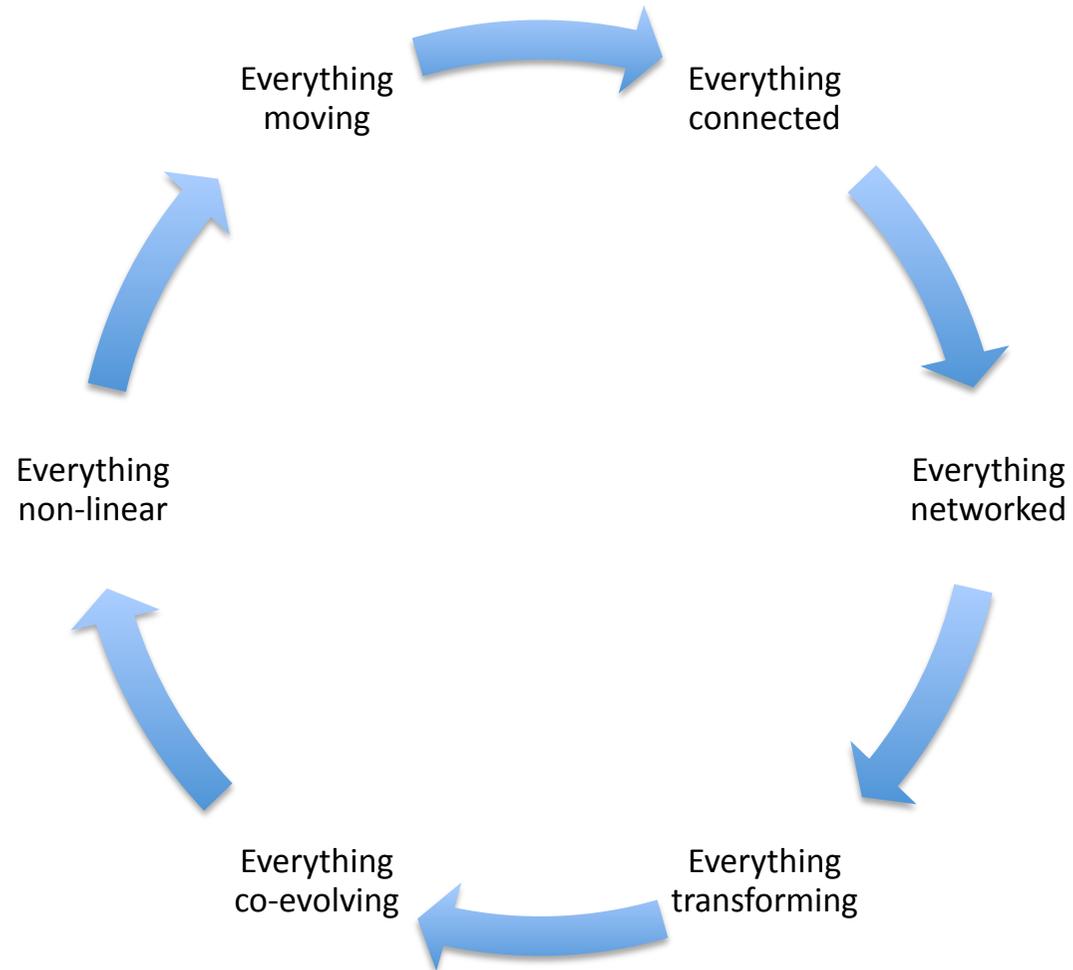
Using AI, Machine Learning & Big Data
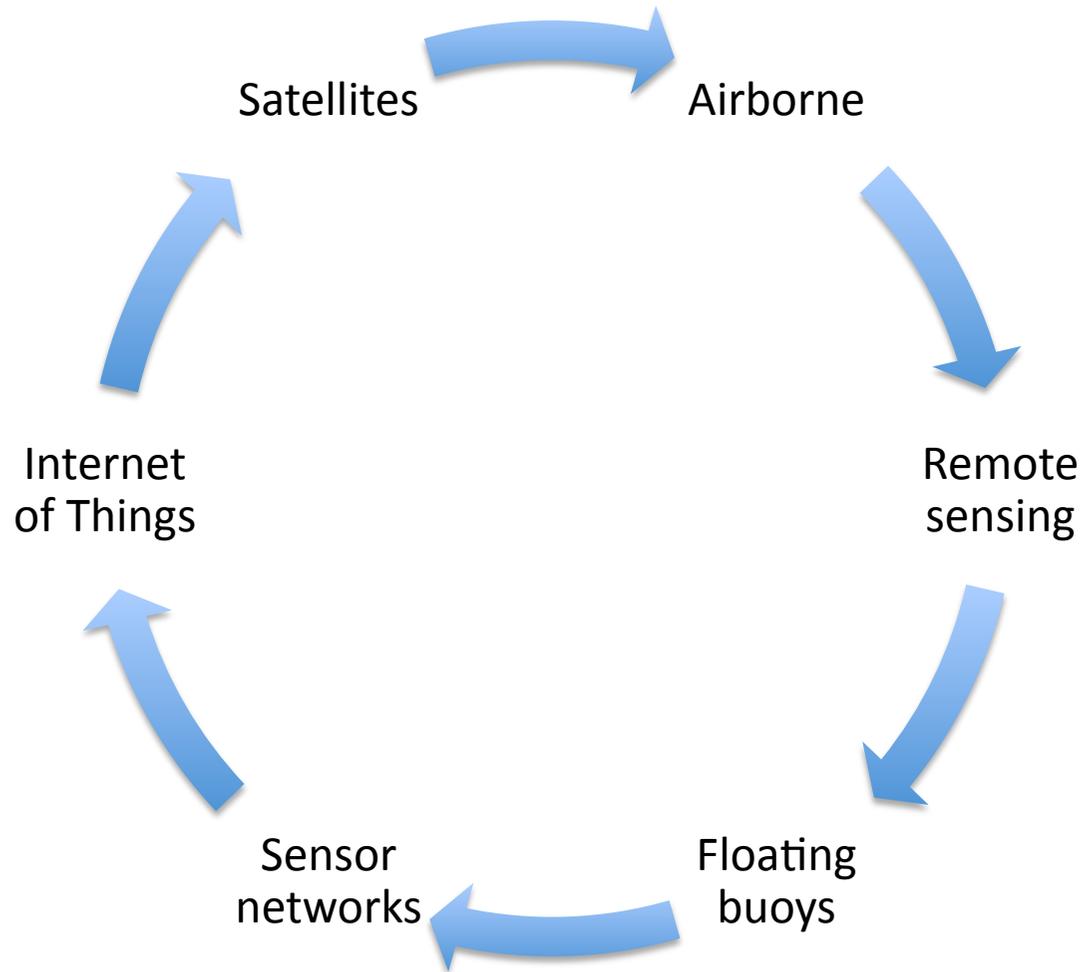
QLARM: earthquake loss estimation

- Estimate of fatalities & injured of a large earthquake, globally, within 60 minutes

- Algorithm based on earthquake coordinates, depth, magnitude, village populations, building structures & soil types

- Over 1000 alerts issued to date

- Can also be used for planning mitigation ahead of time

- Awarded one of top 10 innovative concepts in 2017 by UNISDR, Munich Re & Global Risk Forum

- Recent press commentary in Nature & NZZ

- *Will be extended for tsunami, landslide, flood & fire alerts*

- *Will incorporate OpenStreetMap data with crowd-sourcing*

RISK AWARD

2017 RISK Award Top 10
Information and Communication:
Innovative Concepts and
Technologies for DRR and DRM

The project:

Estimating human losses in unavoidable major earthquakes in the Himalayas

of the organisation:

International Centre for Earth Simulation Foundation (ICES)

was amongst the top ten projects of 2017 RISK Award.

The RISK Award partners UNISDR, GRF Davos and Munich Re Foundation thank the applicant for the valuable contribution to help improve disaster risk management.

On behalf of the jury:

Robert Glasser
Robert Glasser
UNISDR

Walter Ammann
Walter Ammann
GRF Davos

Thomas Loster
Thomas Loster
Munich Re Foundation

GRF — GLOBAL RISK FORUM GRF DAVOS

ISDR

Munich Re Foundation
From Knowledge to Action

The 2017 RISK Award jury members are:

Walter Ammann
President and CEO of Global Risk
Forum GRF Davos, Switzerland

Susan Cutter
Professor University of South
Carolina, Hazards and Vulnerability
Research Institute, USA

Anisya Thomas Fritz
Co-Founder of Fritz Institute and
former Managing Director USA

Robert Glasser
Special Representative of the
UN Secretary-General for Disaster Risk
Reduction (UNISDR), Switzerland

Thomas Loster
Chairman of Munich Re Foundation,
Germany

Hon. Maria Mutagamba
Minister of Tourism and Wildlife, Uganda

Haresh Shah
Professor Stanford University,
Founder and Senior Advisor of Risk
Management Solutions, Inc., India

Sandra Wu, Wen-Hsiu
CEO of Kokusai Kogyo Co., Ltd,
Japan

Christian H. Barthelt, RISK Award Secretariat, Munich, 1 April 2017

COMMENT

Rescue workers in Kathmandu, where a magnitude-7.8 earthquake killed 10,000 people in April 2015.

Report estimated quake death tolls to save lives

Earthquake survivors could be rescued more quickly if the media communicated the number of likely fatalities from the outset, argues **Max Wyss**.

For a decade, seismologists have been able to generate fast, reliable estimates of the number of people likely to have been killed in an earthquake, to within a factor of two or three[1]. But these valuable tools are still not being used to save lives. Knowing whether 10 or 10,000 people might have died tells governments how much effort they should direct to rescuing people buried under rubble. Time is short — few individuals survive for more than three days.

Fatality predictions are sent by e-mail within half an hour of a harmful quake anywhere in the world, for free, by the International Centre for Earth Simulation (ICES) Foundation and the US Geological Survey (USGS). Yet most officials, first responders and journalists are unaware of this. Instead, decisions are based on information that trickles in from the scene. The death toll is generally underestimated. First accounts come from areas where communications networks still function — far from the epicentre. No information flows from the most

devastated areas. Rescue efforts are too little, too late. Many people die needlessly.

I have seen this happen many times, as a seismologist who forecasts earthquake losses for ICES using its QLARM fatality-prediction model. On 24 February 2004, a magnitude-6.4 earthquake struck Morocco at 02:27 local time. Before dawn, the Swiss government offered to send help — its disaster-response team had received my alert indicating that up to 1,000 fatalities were likely. A Moroccan official turned them down. ▶
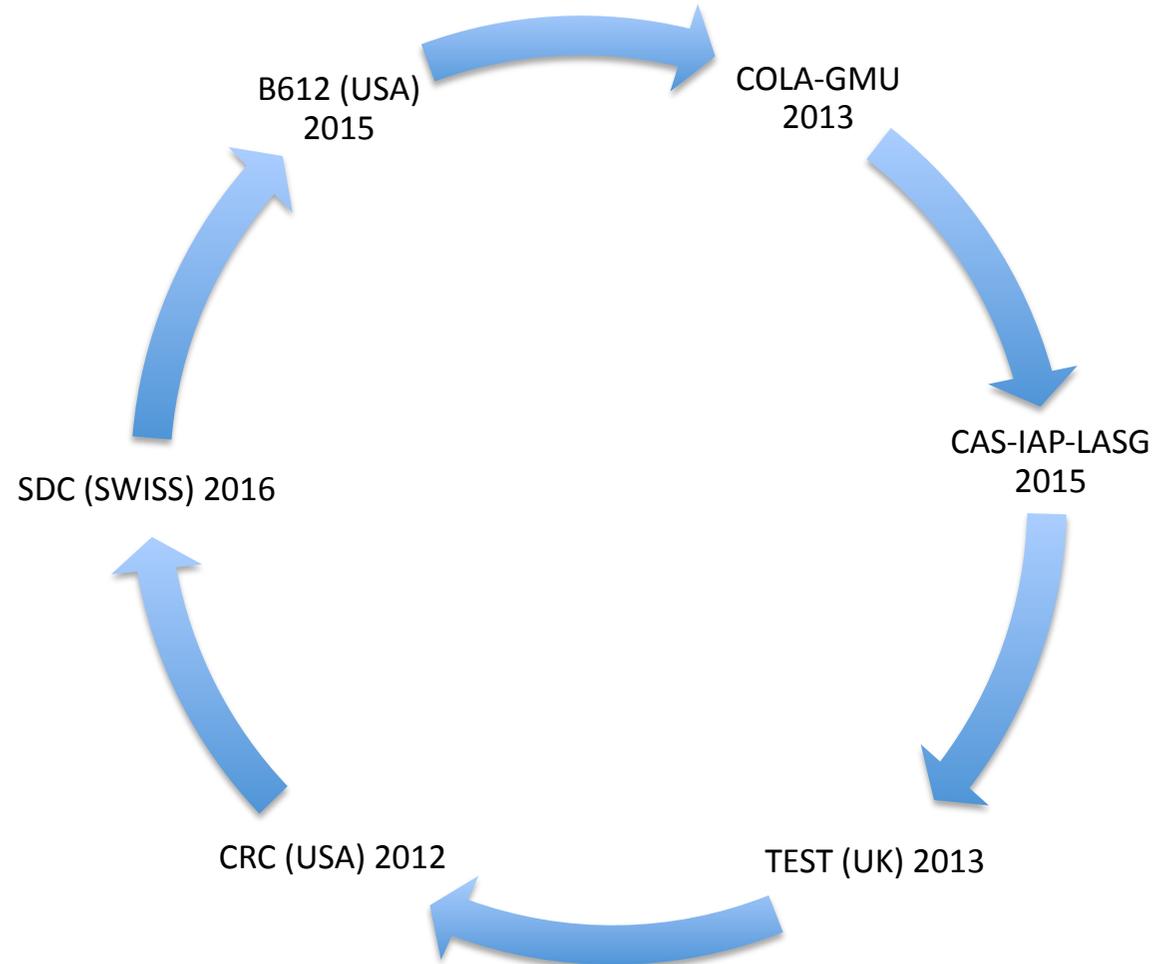
Aiming for Quality of Life

Resilience & Sustainability

Water, Food, Agriculture

Energy, Transport, Economy

Education, Culture, Language

Health & Medicine

Public Safety & Security

At all Levels

With Global Partners

ICES collaboration with CAS/IAP/LASG in 2015

- ACESS: Asian Centre for Earth System Simulation
- Implementation of the ICES *Himalaya Project*
- International Project Office at LASG (Beijing)
- Phase 1a: Asian Monsoon
- Phase 1b: Earthquakes
- Phase 1c: Ecology

Phase 2: Integrate additional partners

ICES

FOUNDATION

**Helping guide the successful transformation of human society
in an era of complexity, rapid climate change and frequent natural disasters.**

www.icesfoundation.org