

PRAGMA 27

2014 *Networking in a big data world*



Bloomington, IN, USA
October 15-17



PRAGMA Update

PRAGMA 27

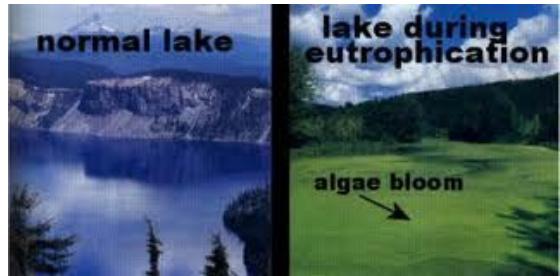
Bloomington Indiana

2014.10.16

PRAG 駄 A 26 Workshop
2014
4.9-4.11 Tainan, Taiwan



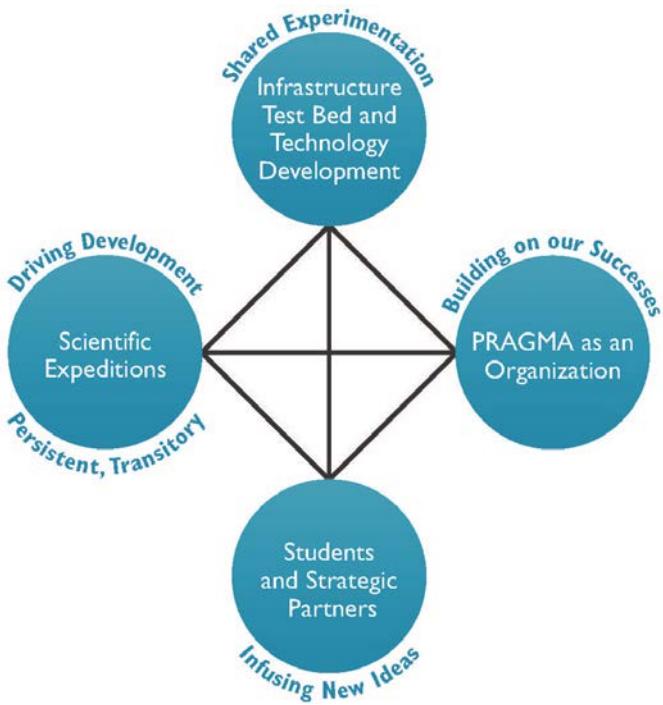
Enabling the Long Tail of Team Science



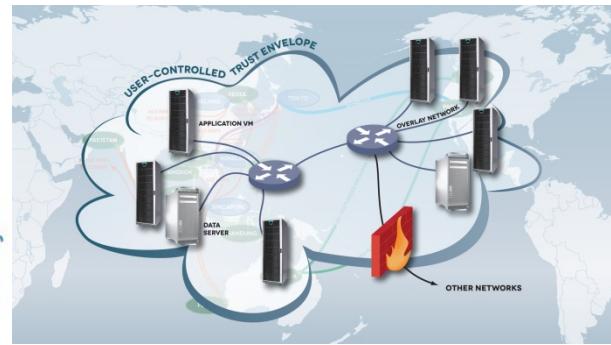
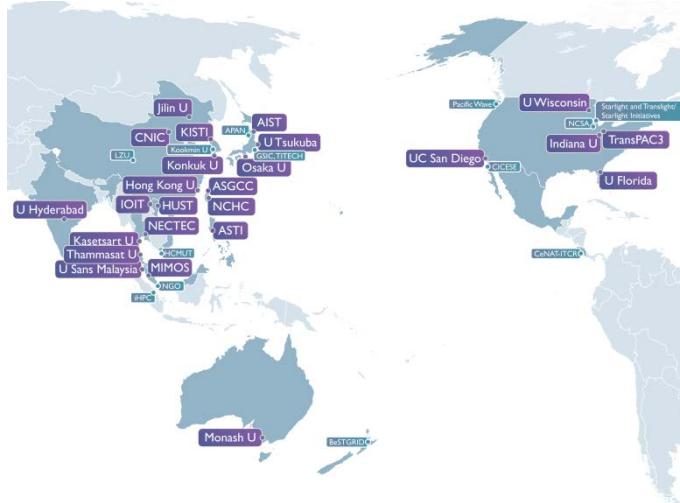
Virtual Scientific Expeditions



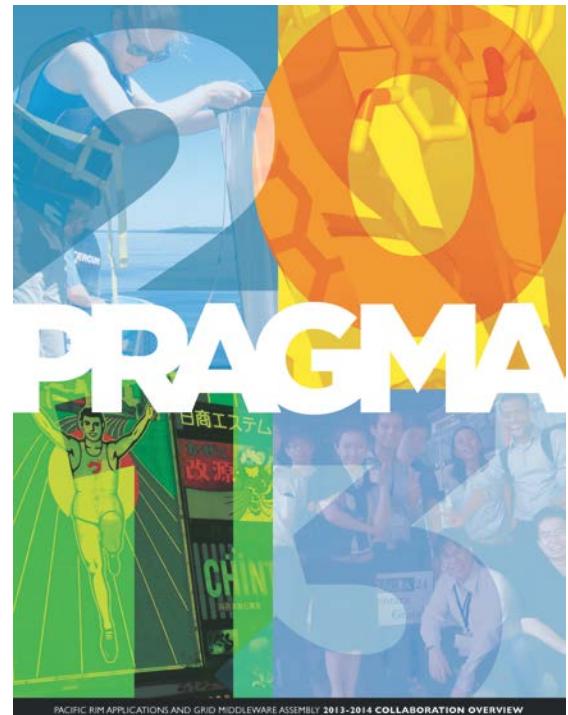
PRAGMA Students



PRAGMA Member Sites

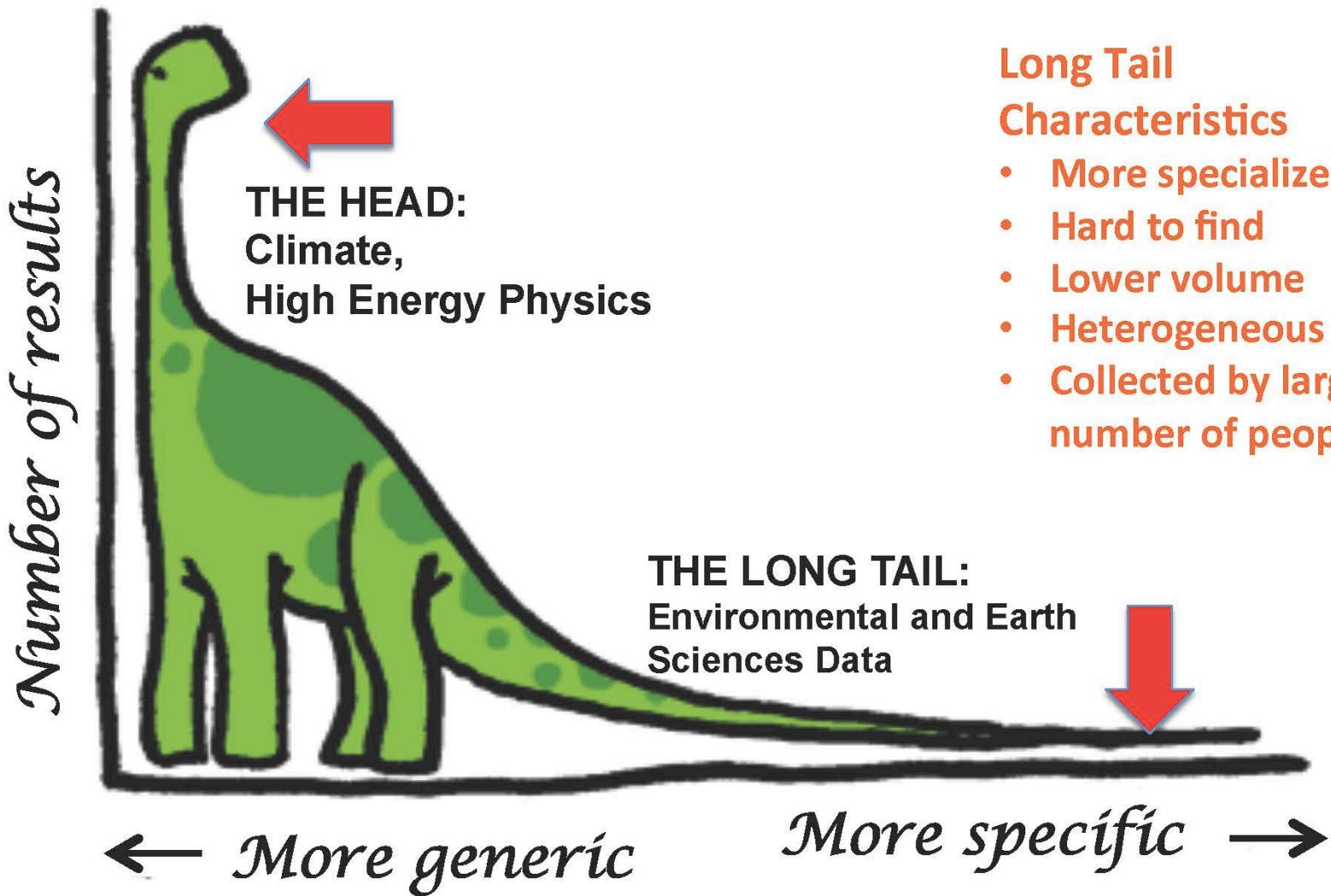


Trust Envelop

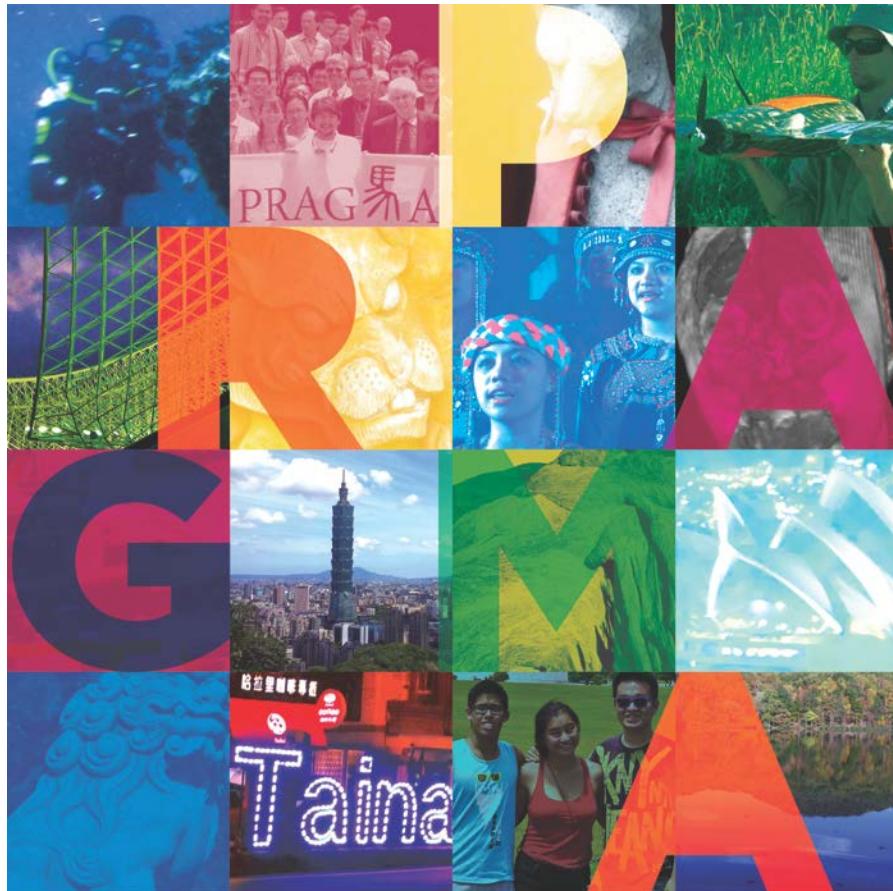


PRAGMA Community

Environmental and Earth Sciences Data have Characteristics of a Long Tail



PRAGMA Collaborative Overview



- Scientific Expeditions
 - Biodiversity
 - Lakes
- Resources
 - PRAGMA ENT
 - Virtual Cluster Sharing
 - Virtual Cluster Management
- Cyberlearning
- PRAGMA Students
 - And PRIME and MURPA
- Building Community

Predicting Species Distribution

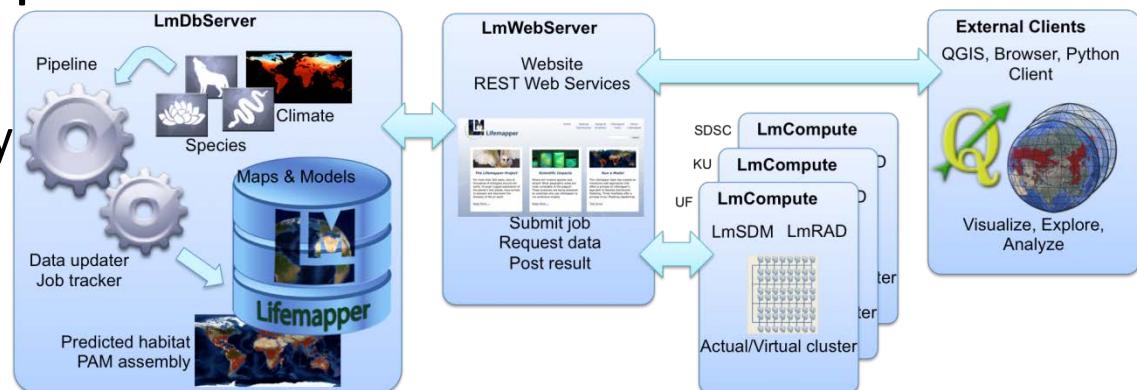
Virtual Biodiversity Expedition: Modeling

- Lifemapper

- Computational infrastructure: for data analysis, modeling species distribution
- Goal of Expedition: reproducible, platform-independent and configurable infrastructure, capable of fast deployment



Mt Kinabalu, Sabah, Malaysia
Biodiversity in Extreme Environments



Demo: Nadya Williams (UCSD), Aimee Stewart (Kansas U)

Convention on Biological Diversity
International Law

Oct 12, 2014

PRAGMA enables valid approach
To data use

Virtual Biodiversity Expedition: Data Capture

- Unmanned Aerial Vehicle

- Sabah Parks, U Queensland, U FL

UAV at Kinabalu Donkey Ears
June 2014



- Cell Phone

- Universiti Teknologi Malaysia



FIELD
WORK

- Species ID
- Occurrence Reporting

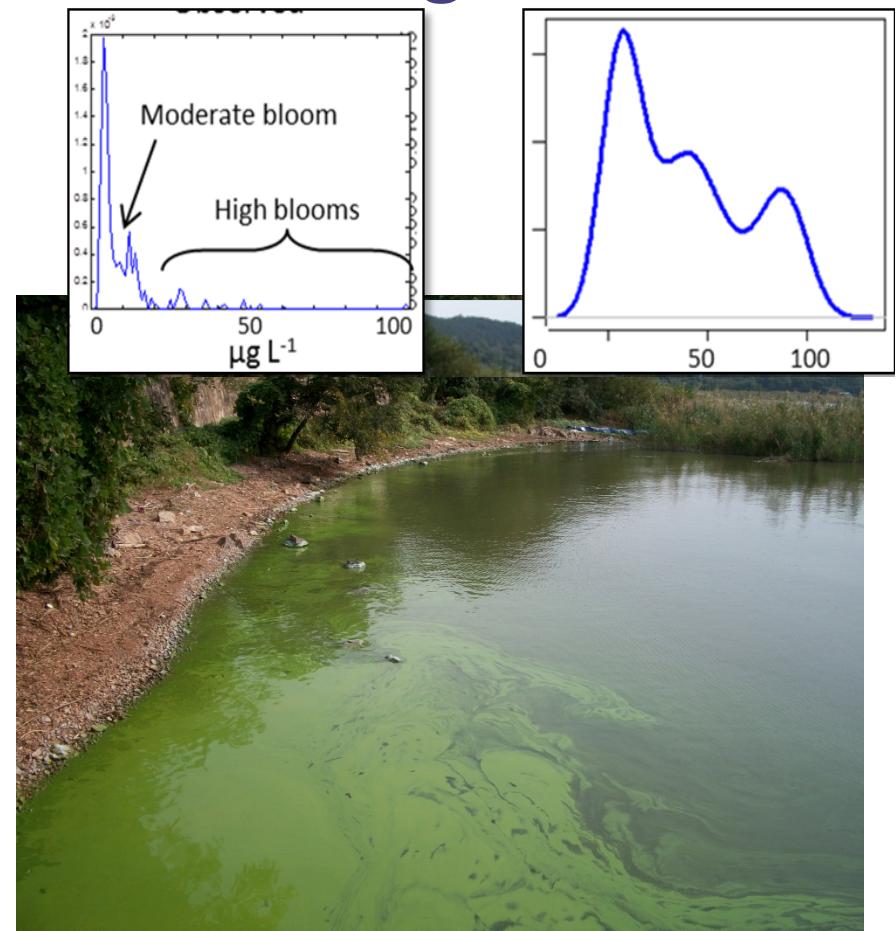


Demo/Telescience: Nor Arlina Amirah Ahmad Ghani, UTM

Predicting Extreme Event

GLEON PRAGMA Expedition and Algal Blooms

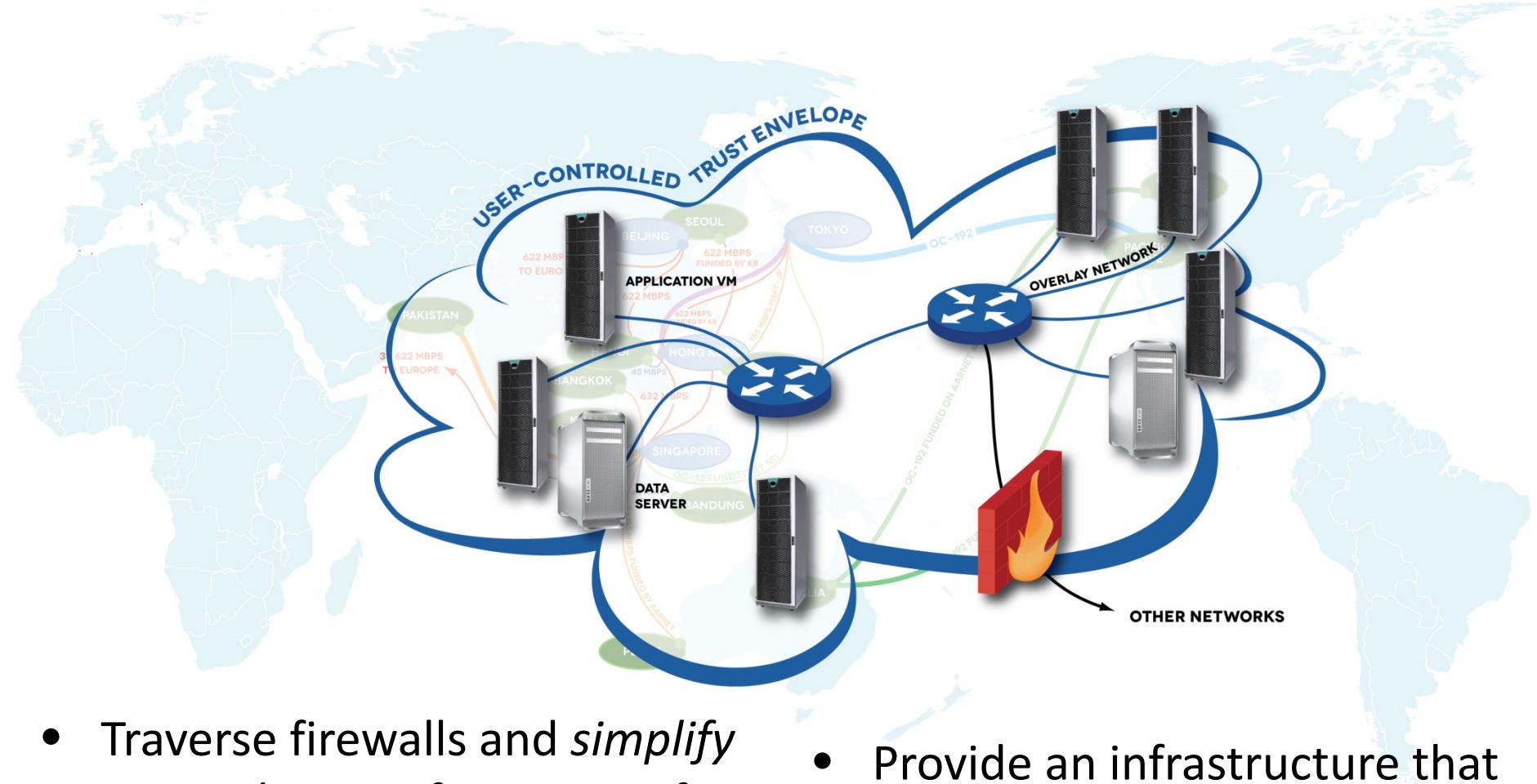
- What factors influence blooms, to enable prediction?
- Multiple factors (parameters) that are inputs to models
- To develop models that reflect data requires scaling computation, easily (IP-over-P2P (IPOP) virtual network project)



Source: Cayelan Carey

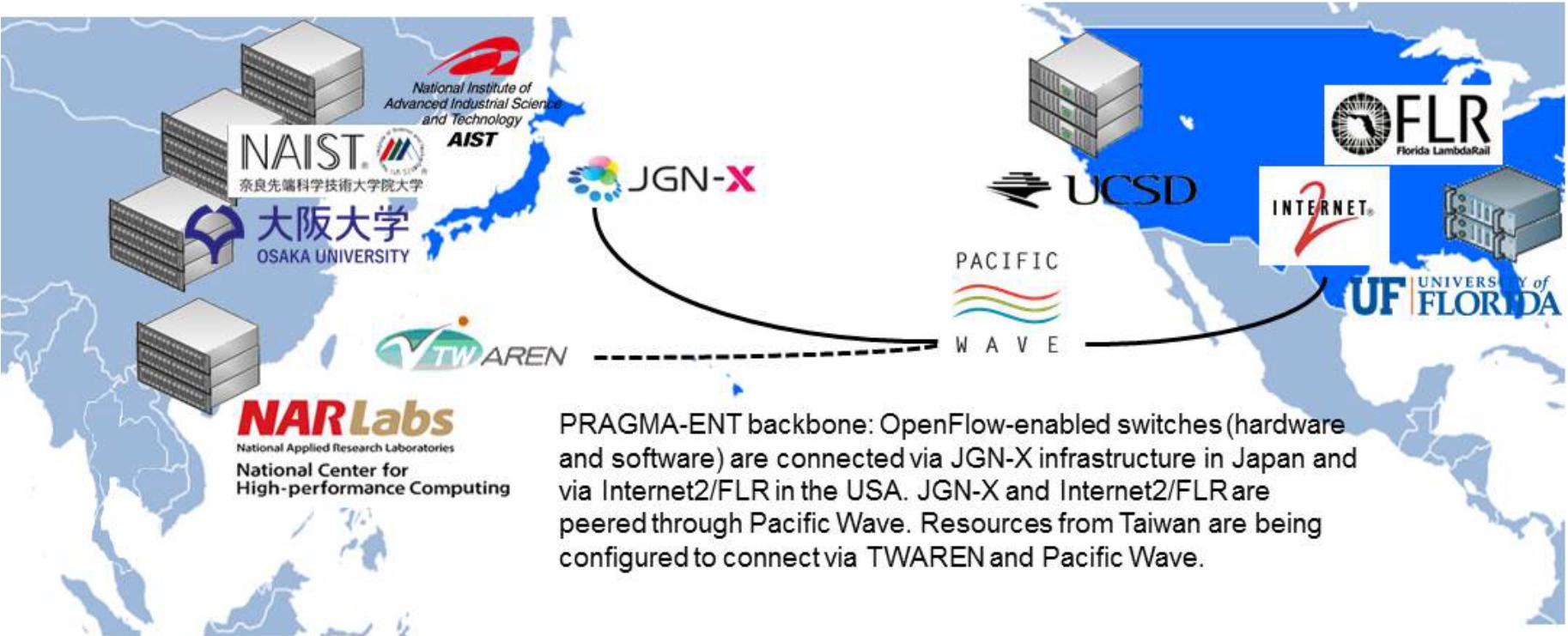
Demo: Renato Figueiredo, Kensworth Subratie (U FL);
Paul Hanson, Craig Snortheim (U W); Cayelan Carey , Jon Doubek (Virginia Tech)

Long-term Technical Vision Driven by Scientific Expeditions



- Traverse firewalls and *simplify network re-configuration* of application VMs
- Provide an infrastructure that initially limits access to data

PRAGMA Experimental Network Testbed (ENT)

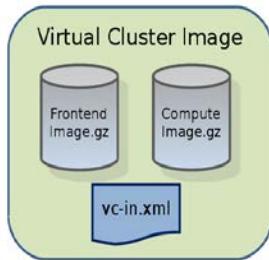


PRAGMA-ENT backbone: OpenFlow-enabled switches (hardware and software) are connected via JGN-X infrastructure in Japan and via Internet2/FLR in the USA. JGN-X and Internet2/FLR are peered through Pacific Wave. Resources from Taiwan are being configured to connect via TWAREN and Pacific Wave.

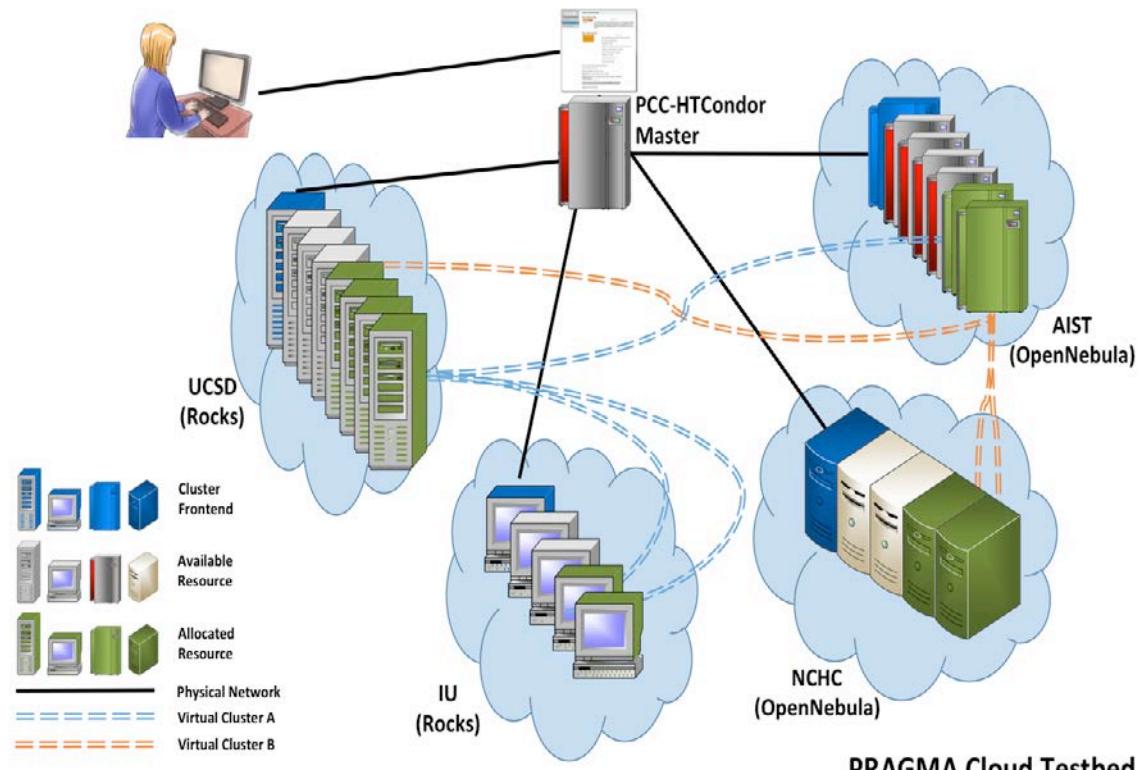
- Conceived at PRAGMA 25 (Beijing)
- A testbed to explore aspects of Trust Envelop and virtualization approaches

UF: MTsugawa; *NAIST:* K Ichikawa, Pongsakorn U. Chawanat N.; *CNIC:* K Dong, Y Ren;
IU: J Williams, J Schopf; *JLU:* X Wei; *Kasetsart U:* Putchong U; *NICT:* J Tanaka, Hi Yamanaka;
NARLabs: FP Lin, LCi Ku, JWi Hu, TL Liu; *AIST:* A Takefusa, J Haga, Y Tanaka; *Osaka U:*
S Shimojo, S Date, Y Watashiba, Yi Kido; *UCSD:* L Clementi, P Papadopoulos.

Virtual Cluster: Sharing and Management on Multi Cloud



- Tools on github.com
 - PRAGMA Bootstrap
 - DynIP
 - VC Out Parser
- Used in Lifemapper and by PRAGMA ENT
 - downloading Virtual Cluster Images from Amazon CloudFront and Amazon S3



Personal Cloud Controller: Integrates PRAGMA Boots, IPOB, with HTCondor

UCSD, Indiana U

AIST, NCHC

Student Session: Yuan Luo (IU)

Simulation-Based CyberLearning

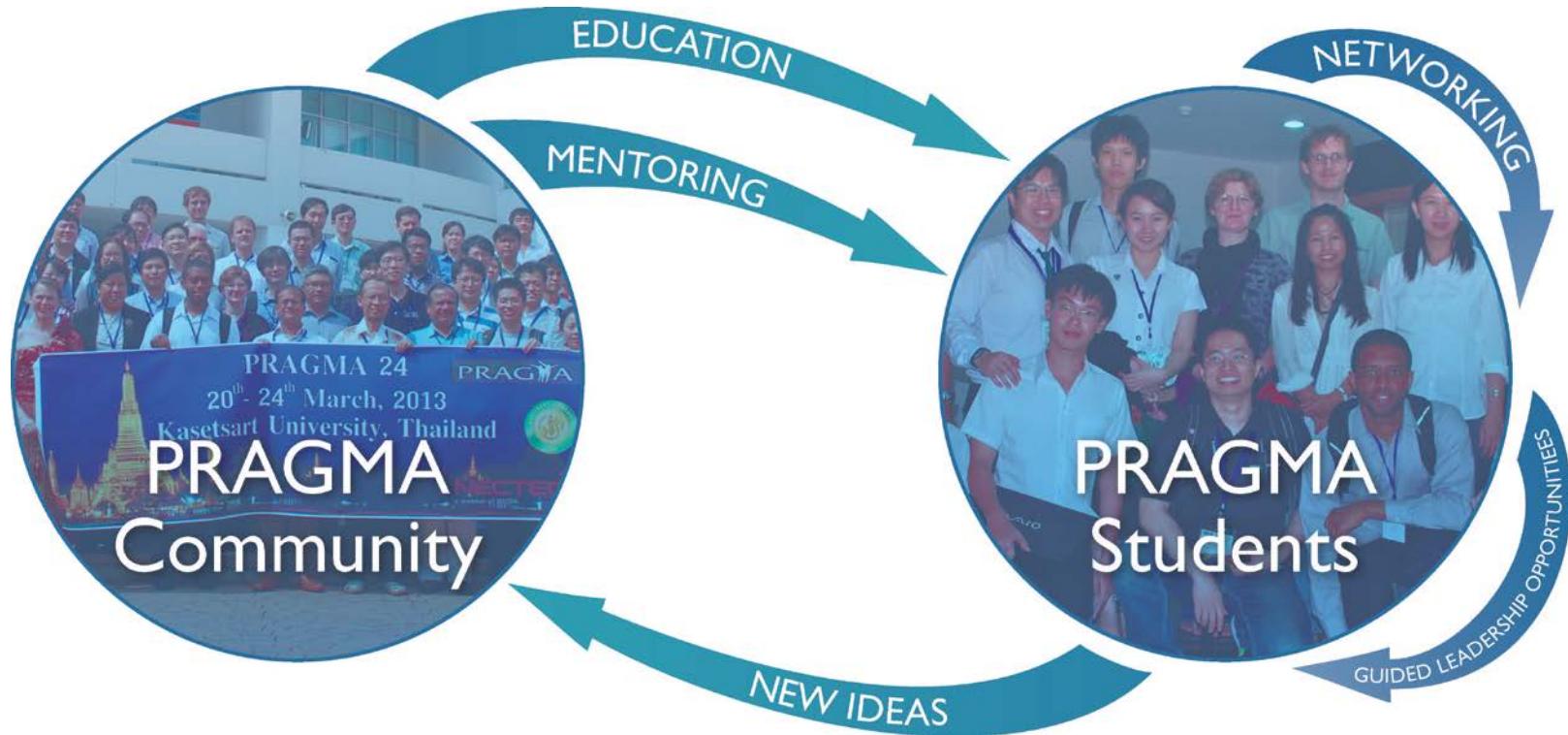
Learning Via Computational Simulation

- Started in PRAGMA 24
- Based on strong experience on Edison (KISTI)
 - Portals and community: CFD, NanoPhys, Compt'l Chem



HPC Innovation Excellence Award from the
International Data Corporation (IDC),
November 2013

PRAGMA Students: Future Leaders



Help students gain opportunities for
professional experiences with
PRAGMA's trusted social and technical networks

PRAGMA Student Activities

- Organize Workshops



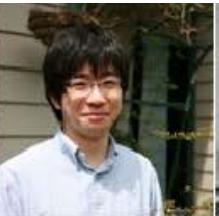
- Organize Demos, Poster Sessions, Lightning Talks



JONATHAN



CRAIG



HIROKI



PONSAKORN



YASUHIRO



CHAWANAT



YUAN



QUAN



LUCA

- PRAGMA 27 Program Expedition Challenge
 - <http://pragma27.pragma-grid.net/dct/page/70004>

PRAGMA Students Leadership

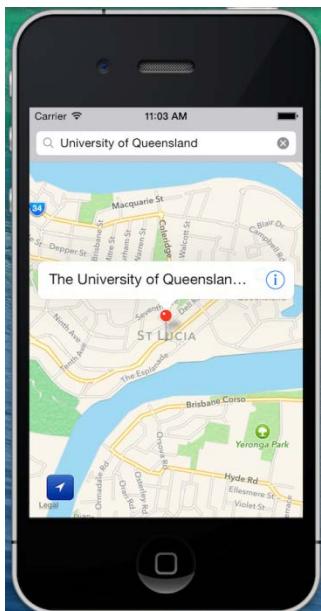
- Yuan Luo, Indiana U
 - Thank you for your help
- Meilan Jiang, Konkuk U
- Gabriele Zhou, Indiana U
- Pongsakorn U-chupala, NAIST



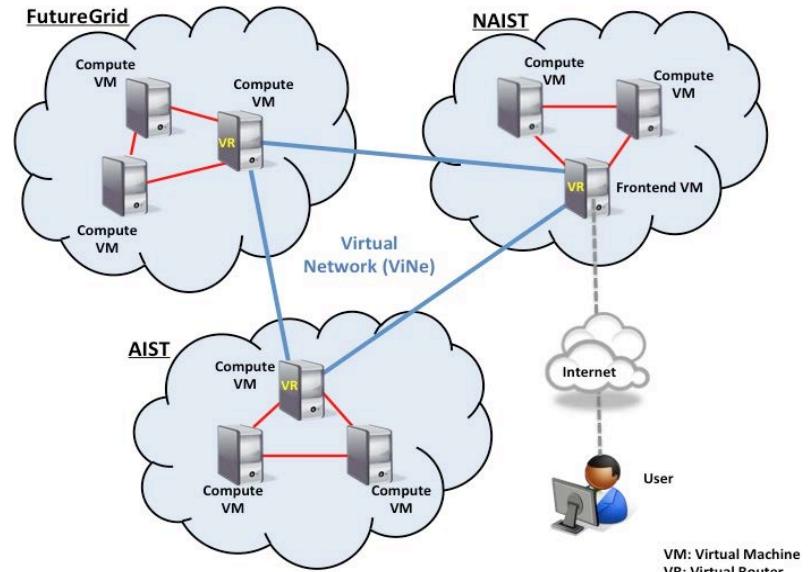
PRIME 2014

Institutions

- Nara Institute of Science and Technology (NAIST)
- National Institute for Information and Communication Technology (NICT)
- National Center for High-performance Computing (NCHC)
- National Taiwan University (NTU)
- University of Queensland (UQ)

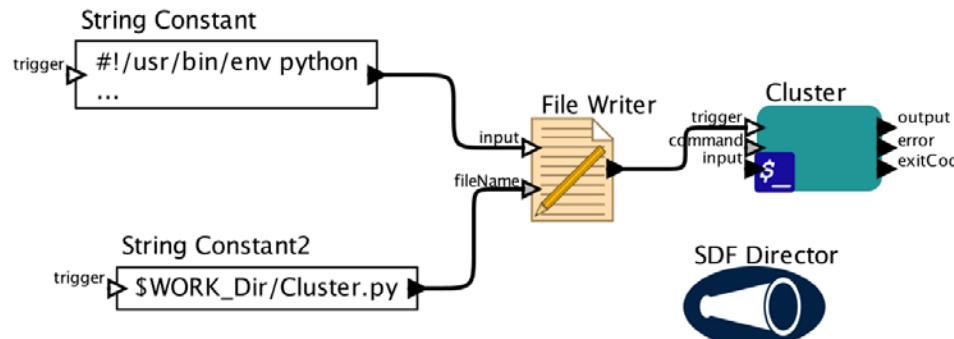


K. Zorko, UQ



A. Nguyen, NAIST

- PDB: /extra/moana/amarolab1/Kepler_Projects/Garret_Pek/Markov_...
- WORK_Dir: /extra/moana/amarolab1/Kepler_Projects/Garret_Pek/Markov_...
- CLUSTER: /extra/moana/amarolab1/Kepler_Projects/Garret_Pek/Markov_...



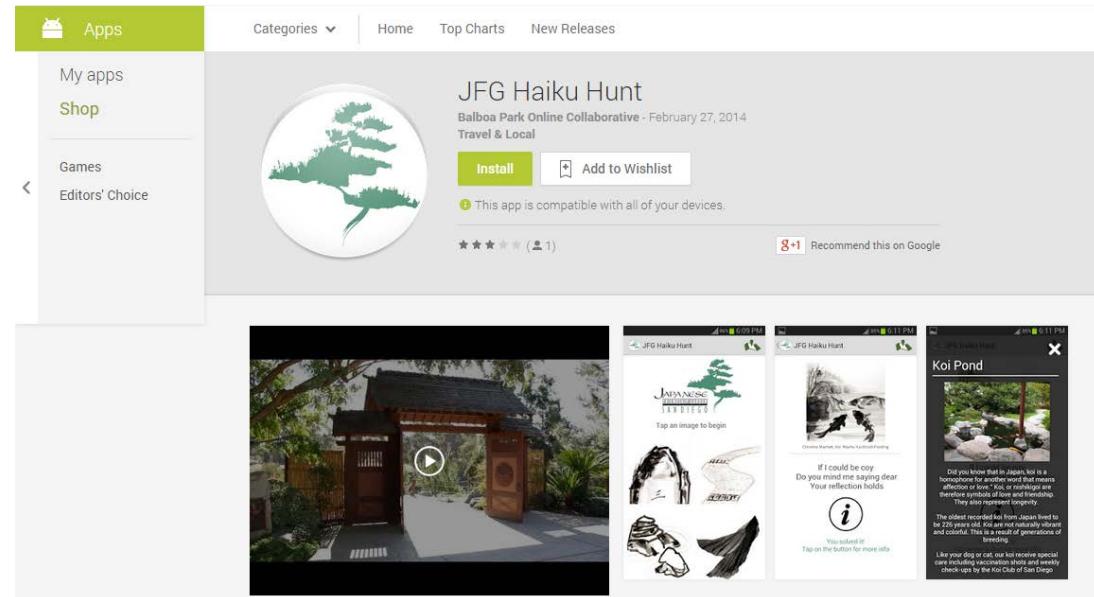
G. Chan, NTU



N. Wong, NICT/Osaka

Honeysett & Din Award (MUSE) to Former PRIME Effort: Japanese Friendship Garden Haiku Hunt App

- Jesus Rios, PRIME 2013
- *"Highly interactive, infusing the existing visitor experience with playfulness, participation and freshness, this project combines education and entertainment in an exciting way. The app leverages the geo-location functionality of a mobile device, traditional Japanese haiku and a scavenger hunt to encourage learning and discovery."*



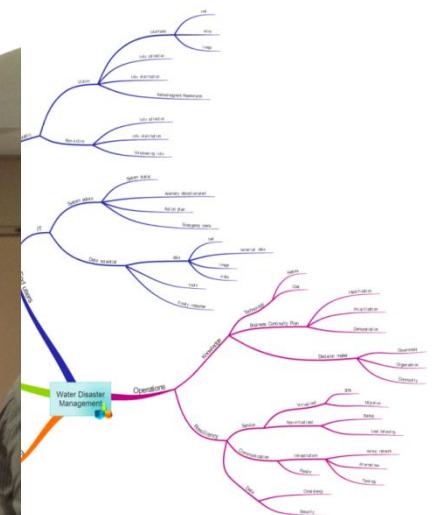
NICT, Balboa Park Online Collaborative,
Information Services International-Dentsu,
Ritsumeikan University, UCSD

Building Community

- International Conference on Serpentine Ecology
 - Sabah, Malaysia
 - Mini PRAGMA and work on PRAGMA Expedition,
- Lower Mekong Initiative: Cyberinfrastructure and Water Management
 - PRAGMA Co-organized with Indiana and NSRC as Leads
 - <https://www.youtube.com/watch?v=oJHeUYiu-Y8> Thanks to NSRC!

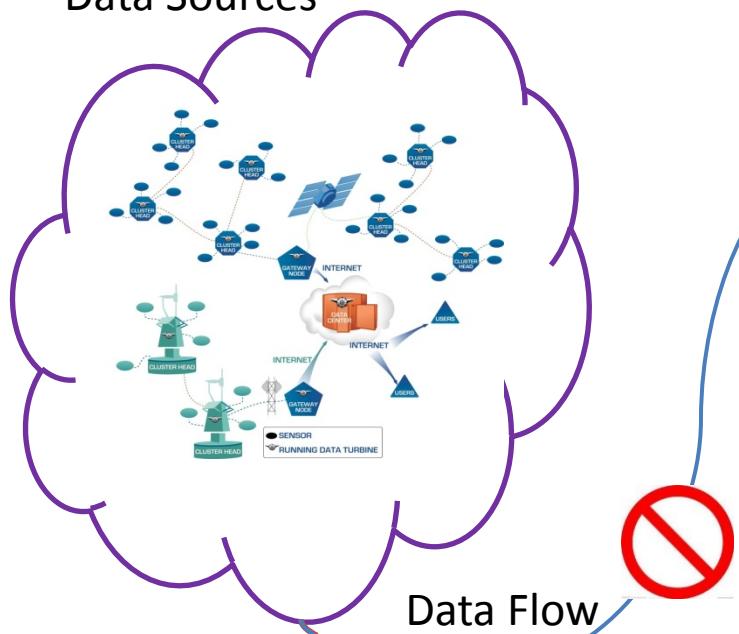


Water Disaster Management and Big Data



Disaster Service Recovery and Continuity through Virtual Data Centers: A Next Step

Sensor Networks:
Data Sources



Virtual Data Center



Virtual Data Center (backup services)



by Phil Papadopoulos

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Understand, Predict and Communicate the Role and Response of Lakes in a Changing Global Environment

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GLEON 16

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/ Site News](#)[Visa and Passport](#)[Travel Information](#)

BLOG.GLEON
GLOBAL LAKE ECOLOGICAL OBSERVATORY NETWORK

»

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GLEON 16

Orford, Québec, Canada, 27 - 31 October 2014

*Tentative Program Outline

**Planning in process. Dates are confirmed but daily agenda is still in the development stage, subject to change. Last updated:*

26 July 2014.

[Next scheduled update: 20 October 2014](#)



[HOME](#) » [GLEON NEWS](#) » [PRAGMA-GLEON EXPEDITION, 2014](#)

PRAGMA-GLEON Expedition, 2014

by Meilan Jiang

The Pacific Rim Application and Grid Middleware Assembly (PRAGMA) 26th meeting was held in Taiwan in April with the underlying theme of "Living with Big Data." Recent efforts of the GLEON – PRAGMA collaborative scientific expedition were shared at a group session in the meeting, and challenges and

CARBON
CYCLING
ON LAKES
(COCLAKE)

Upcoming Events



Southeast Asia International
Joint Research and Training Program

東南亞國際合作高速計算應用與網路共同研究暨培訓研習會

Welcome
About SEAIP
Important Dates
Sponsorship
Agenda
Registration
Invited Speakers
Venue
Visa Application
Accommodation
Gallery



Welcome to SEAIP 2014

[Agenda](#) [Registration](#) [Important Dates](#)

Dear Colleagues,

On behalf of the National Center for High-Performance Computing (NCHC), it is our great pleasure to welcome your participation in SEAIP 2014!

Taiwan is also known as "Formosa" which means "Beautiful Island." Included in Taiwan's 19 major cities and counties are bustling metropolises like Taipei, Taichung, and Kaohsiung. Also, Taiwan's fifth largest city, Hsinchu, has one of the highest densities of hi-tech enterprises in the entire world! Natural wonders such as Hualien County's splendid ocean views and magnificent mountain scenery and Kaohsiung's port views are not to be missed! This beautiful island, full of cultural, natural, and hi-tech wonders, promises a very special meeting experience in Asia!

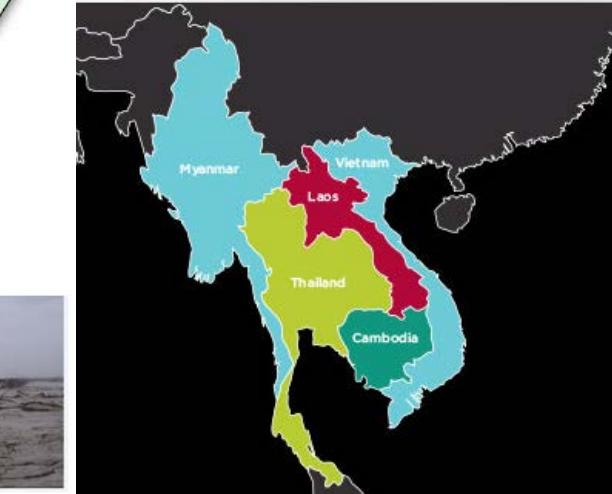
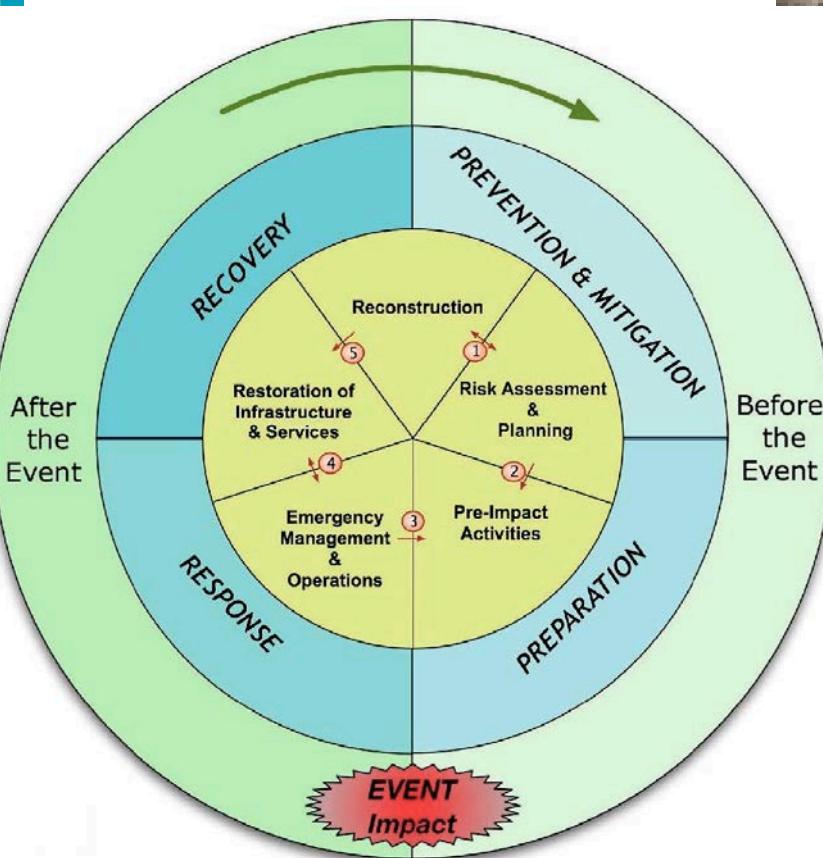


Tainan and Kaohsiung, December 1 – 6, 2014
<http://http://seaip.narlabs.org.tw/>
Fang-Pang Lin

Disaster Mitigation and Recovery

Regional Responses

Water and Disaster
High-Level Expert Panel on Water and Disaster/UNSGAB
March 2009



Global Societal Challenge

Global pressure is mounting at the nexus of Interlinking resources

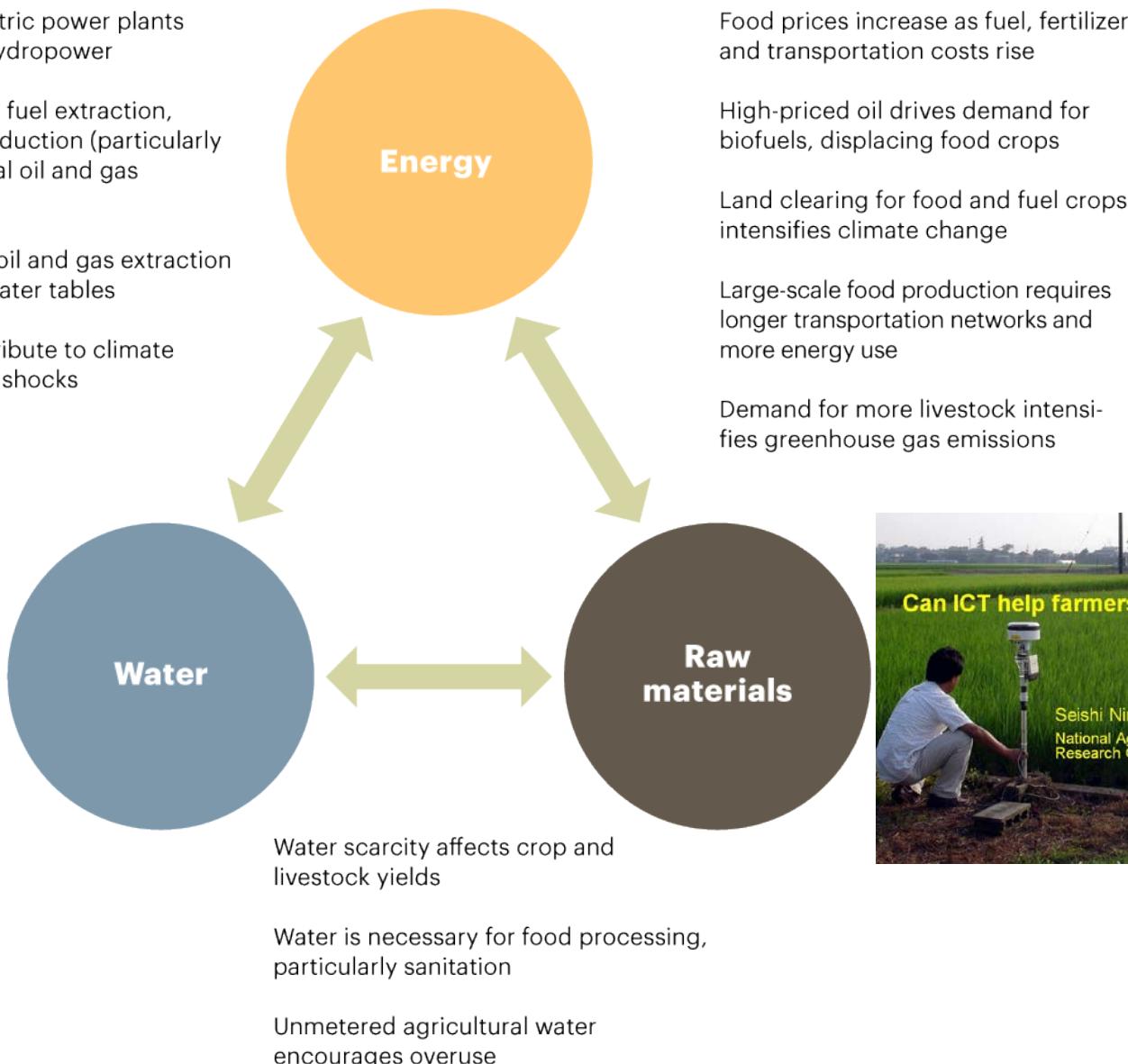
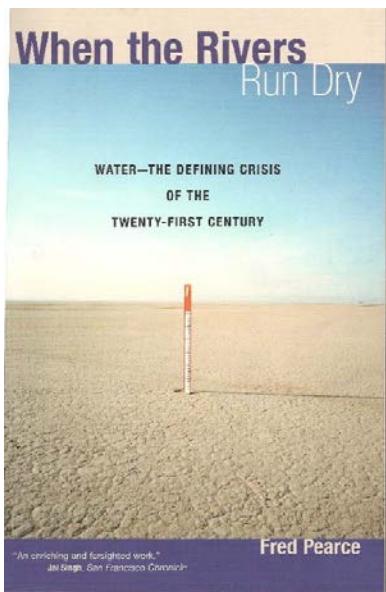
Figure 2

Water cools electric power plants and generates hydropower

Water is used for fuel extraction, refining, and production (particularly in unconventional oil and gas extraction)

Unconventional oil and gas extraction could damage water tables

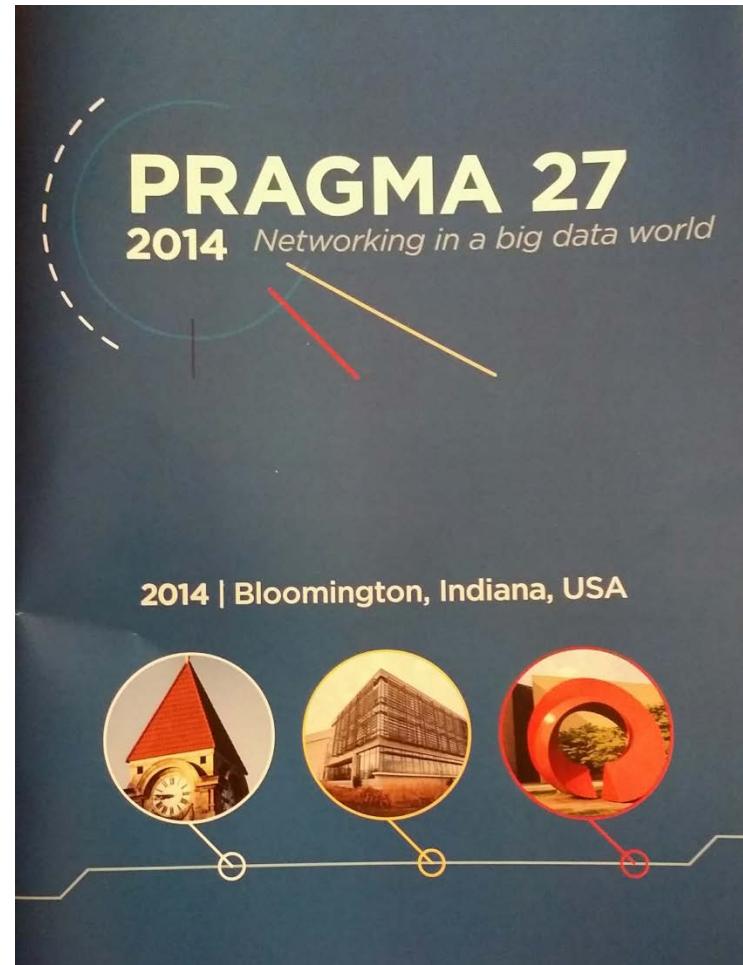
Fossil fuels contribute to climate change demand shocks



Source:
A.T. Kearney

PRAGMA 27 Structure

- Workshops
- Plenary Talks
- Demos and Posters
- Working Group Meeting
 - Biosciences: Jason Haga
 - Telescience/Geoscience: Fang-Pang Lin, Shinji Shimojo
 - Resources: Phil Papadopoulos, Beth Plale, many others
 - Cyberlearning: Ruth Lee
- Steering Committee Meeting



Steering Committee Topics: New Members, Next Meeting

- New Members Applications
 - Nara Institute of Science and Technology (NAIST)
The NAIST logo consists of the letters "NAIST" in a bold, sans-serif font. A registered trademark symbol (®) is located at the top right of the letter "T".
– Institute for Computational Science and Technology (ICST)
The ICST logo features a stylized triangle composed of three dots. Inside the triangle is a circular swirl pattern in red, green, and blue. Below the triangle, the letters "ICST" are written in a bold, sans-serif font.
- PRAGMA 28 Proposal
 - NAIST, April 8 – 10, 2015

Steering Committee Topics: Changes to Operational Principles and Practices

- Selection of Membership to Steering Committee
- Designation of Former Members as Ex-Officio
- Representation of PRAGMA Students on Steering Committee

Thanks to the Organizers and Sponsors

- Beth Plale
- Robert Ping
- Quan Gabriel Zhou
- Many others



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