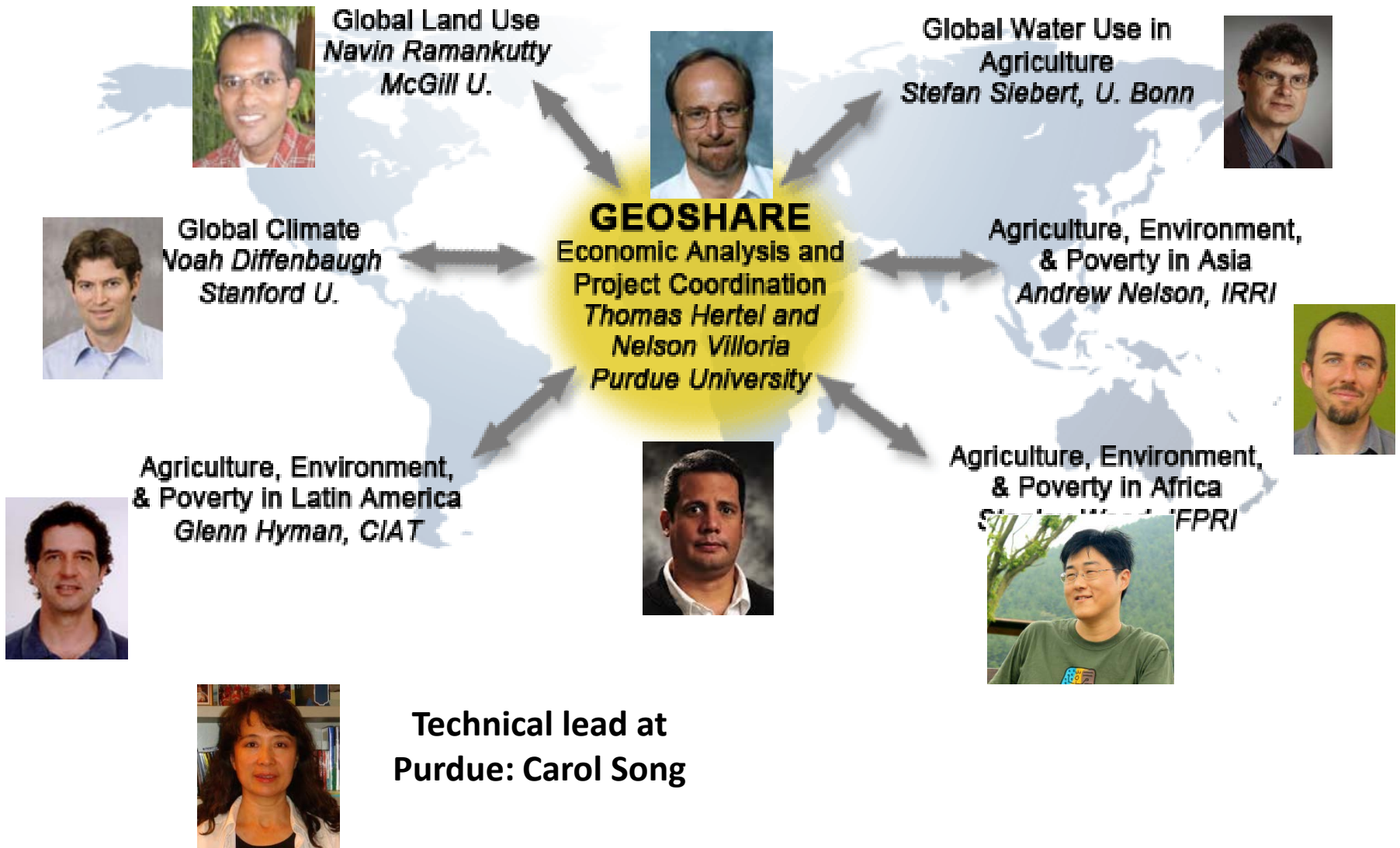


# **GEOSHARE:** Geospatial, Open-Source Hosting of Agriculture, Resources and Environmental Data

Presented by Thomas Hertel  
Purdue University

Prepared for the panel on open source hosting of geospatial data  
Wednesday, March 19, 2014

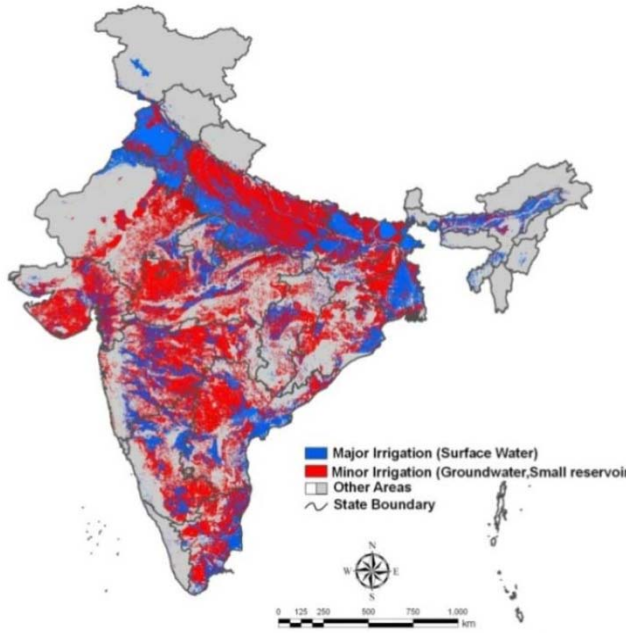
# Global and regional nodes are crucial to incorporate local knowledge into global data architecture



# How much irrigated area in India?

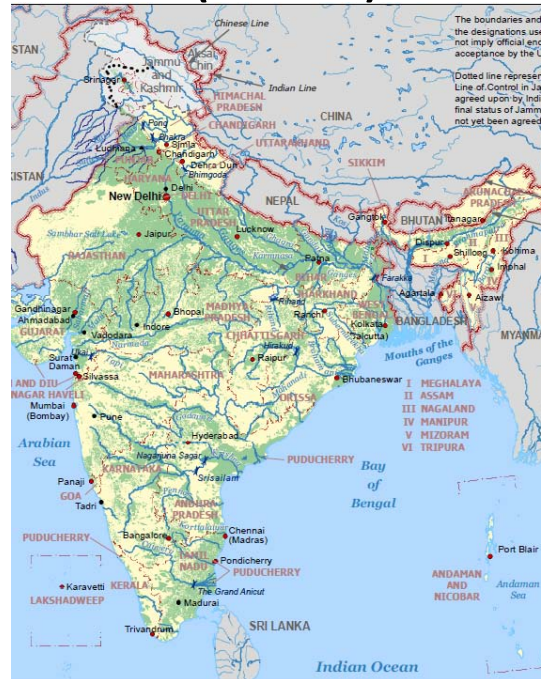
Remote sensing based

IWMI (113 Mha)  
(2001-2003)

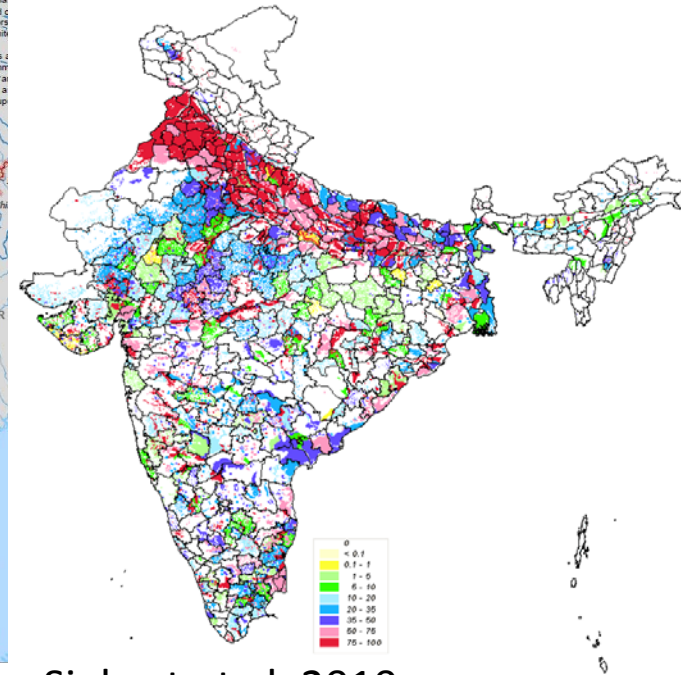


Mainly based on census survey data

FAO (66 Mha)  
(2008)



GMIA (62 Mha)  
(2000-2002)



Thenkabail et al. 2009

FAO 2011

Siebert et al. 2010

Government of India (2005-2007):

54-63 Mha

(Agr. Census, Input survey, NIC land use, Stat. Yearbook)

# ***Global and regional nodes are crucial to incorporate local knowledge into global data architecture***



**Global Land Use**  
**Navin Ramankutty**  
**McGill U.**

**Global Water Use in**  
**Agriculture**  
**Stefan Siebert, U. Bonn**



**Agriculture, Environment,**  
**& Poverty in Asia**  
**Andrew Nelson, IRRI**

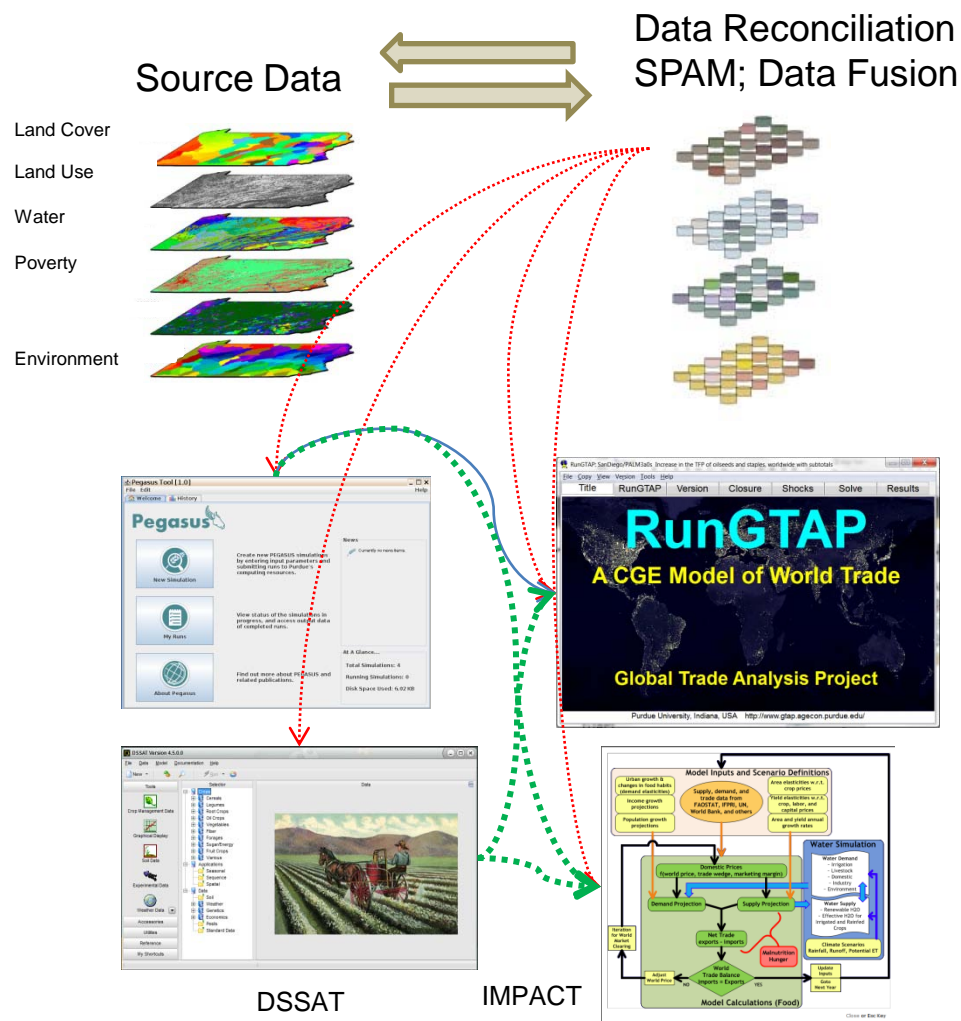
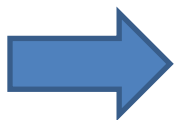


***Reducing uncertainty in irrigated areas in India depends critically on collaboration across disciplines and across scales***

# Workflows: From data to analysis

- Gridded source data on land cover & use, water, poverty and environment - *flows into* -
- Data reconciliation 'models', e.g. SPAM which produce usable data - *for use in* -
- Biophysical and economic models (e.g., DSSAT, IMPACT, GTAP)

Sensitivity of results at final stage determines value of improving quality of source data



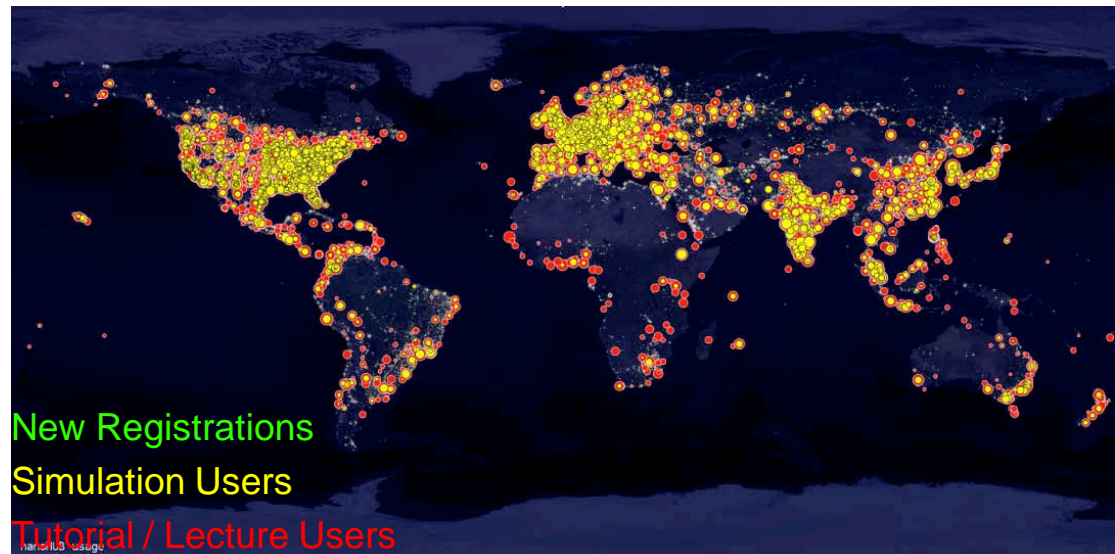
# GEOSHARE is different from existing initiatives in that....

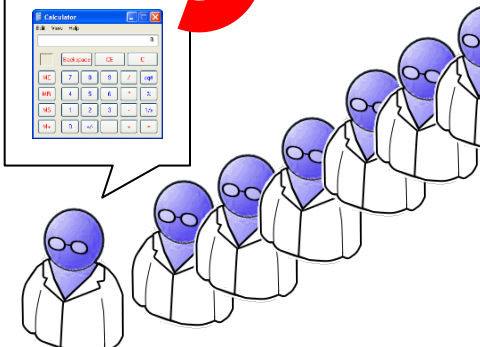
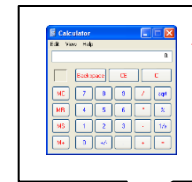
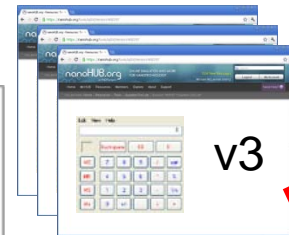
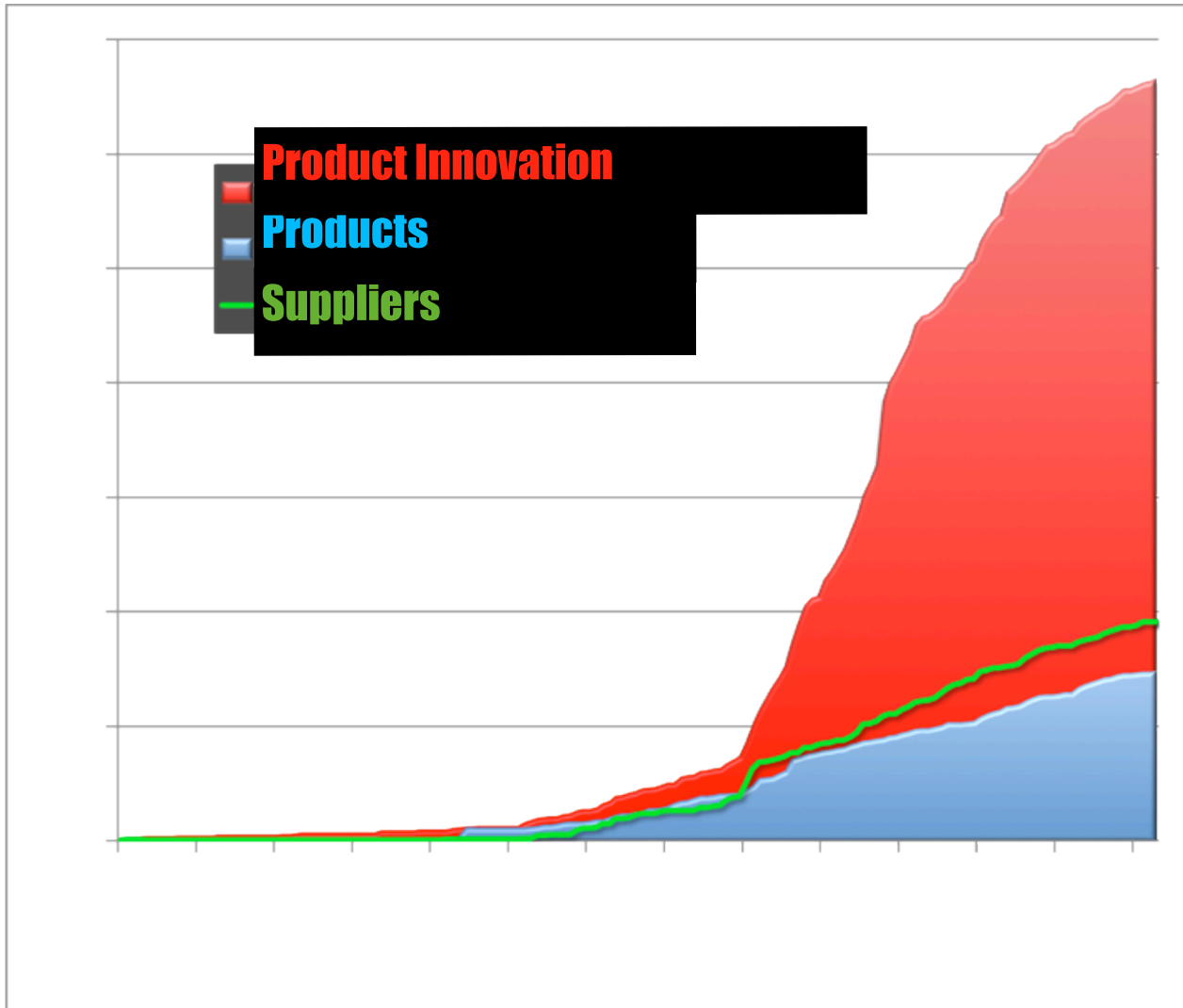
- Allows users to publish workflows on the HUB
- HubZero technology goes beyond spatial zooming and summary statistics, facilitating:
  - Use of analysis tools ‘in the clouds’
  - Networking and sharing of data
  - Technology transfer
  - Capacity building
  - Truly OPEN SOURCE
  - Grew out of NanoHUB – now more than 40 HUBs

# HubZero Cyberinfrastructure

- Created by the NSF-funded Network for Computational Nanotechnology
- *Users* create, publish and access interactive visualization, simulation, and other analytical tools powered by cluster computing resources
- Focus on education and capacity building, including tutorials and lectures

**nanoHUB: over 12,000 / 257,000 Users Annually**





Continual Engagement

380+ Developers  
NOT PAID by NCN



# Want to learn more about HUBzero?

- GEOSHARE ‘training session’:
  - Session #83: Friday, 11am – 12:30, room 0’310
  - Led by Nelson Villoria
- Special features:
  - How to upload a ‘widget’ or tool
  - Public release of a widget to aggregate climate impacts (36,000 layers/100 year time series) published by AgMIP and ISI-MIP
  - Discussion of data sharing/collaboration tools