

# Asia Flood Network: USAID/OFDA Flood Mitigation and Preparedness Program in Asia

By

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And

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Dr. Greg Husak

U.S. Geological Survey (USGS)



# Agenda

- What is USAID/OFDA?
- What is Asia Flood Network?
- What is an end-to-end flood early warning and mitigation?
- Component of an end-to-end system
- Presentation on Flash Flood Guidance System

# USAID Office of U.S. Foreign Disaster Assistance



Save lives, alleviate human suffering, and reduce the economic impact of disasters



# Asia Flood Network- Program for Flood Mitigation in Asia

- Reduce the vulnerability of population to flood hazard in Asia
  - Identify and fill the gaps in flood/river forecasting and early warning
  - Strengthen regional and national institutions on hydrometeorological forecasting and early warning
  - Encourage data/information sharing in transboundary river basins
- Partners: NOAA, USGS, MRC and ICIMOD
- Mekong River and Ganges-Brahmaputra-Meghna River Basin

# AFN Activities in 2005

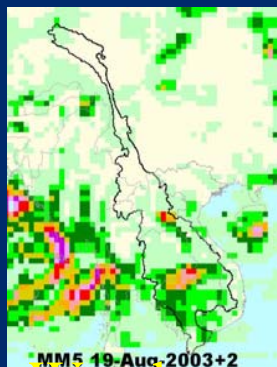
- MRC
  - Satellite Rainfall Estimation
  - Flash-Flood Guidance system
  - Tributary forecast in Lao PDR
  - RANET
  - Drought Monitoring
- ICIMOD
  - Satellite Precipitation Estimation
  - Flash-Flood Guidance Warnings

# Lead time

## Data Collection and Monitoring



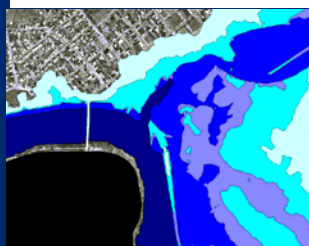
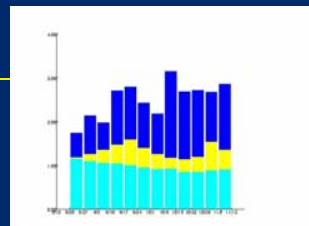
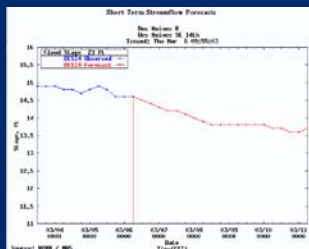
Transmission



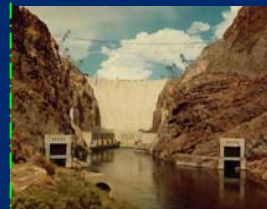
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Weather Forecast

## Hydrometeorological Forecasting

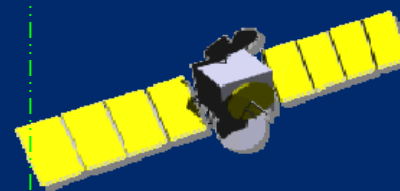


Decisions  
Policies  
Coordination



Planning  
Preparedness

RANET



Dissemination

Action  
S

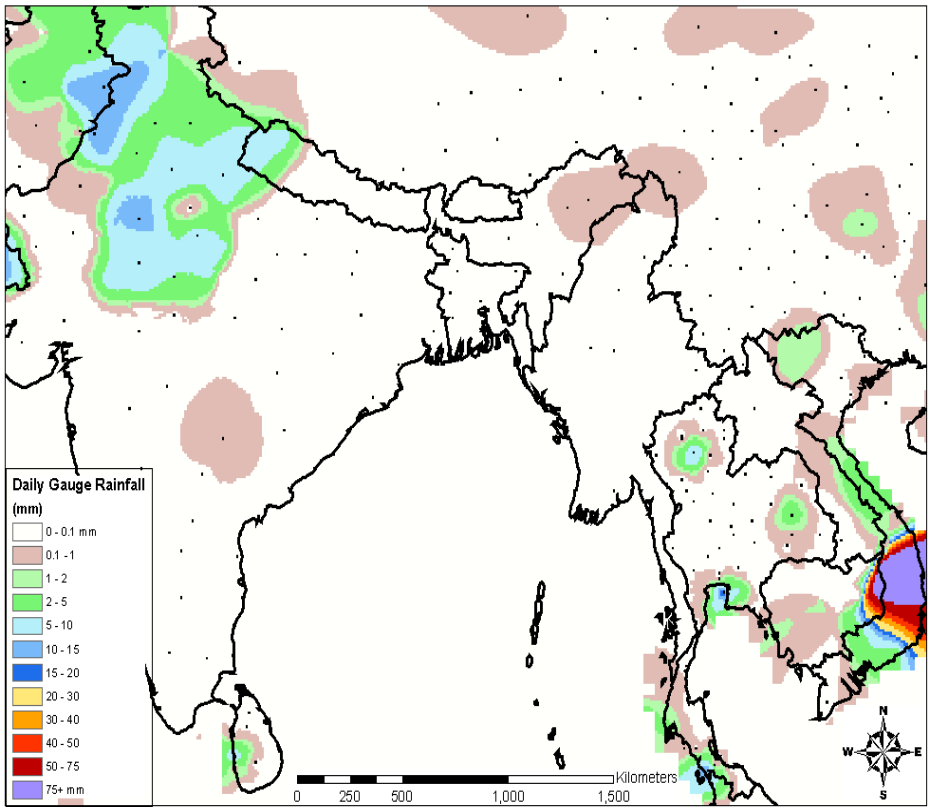
Community based preparedness (ARC, CRC, ACF and MRC)



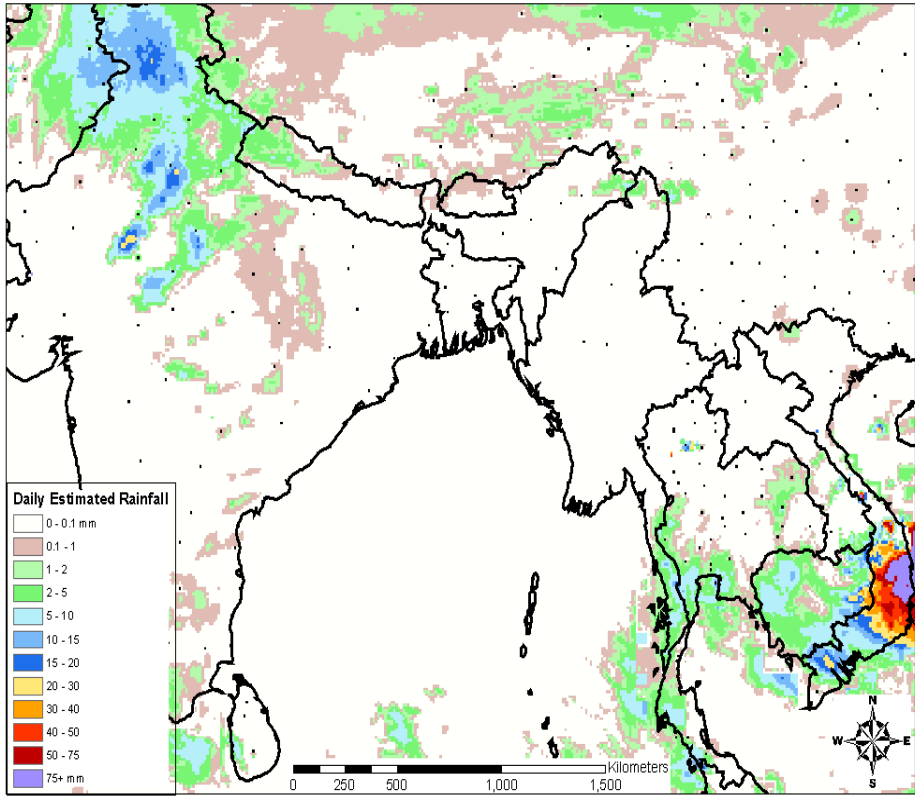
# Data Collection and Monitoring: Satellite Precipitation Estimation

Tim Love and Eric Wolvovsky

March 14, 2006 Rain Gauge Interpolated Precipitation



March 14, 2006 Satellite-Gauge Merged Precipitation



# Drought Monitoring: GeoFuse ARC Toolbox

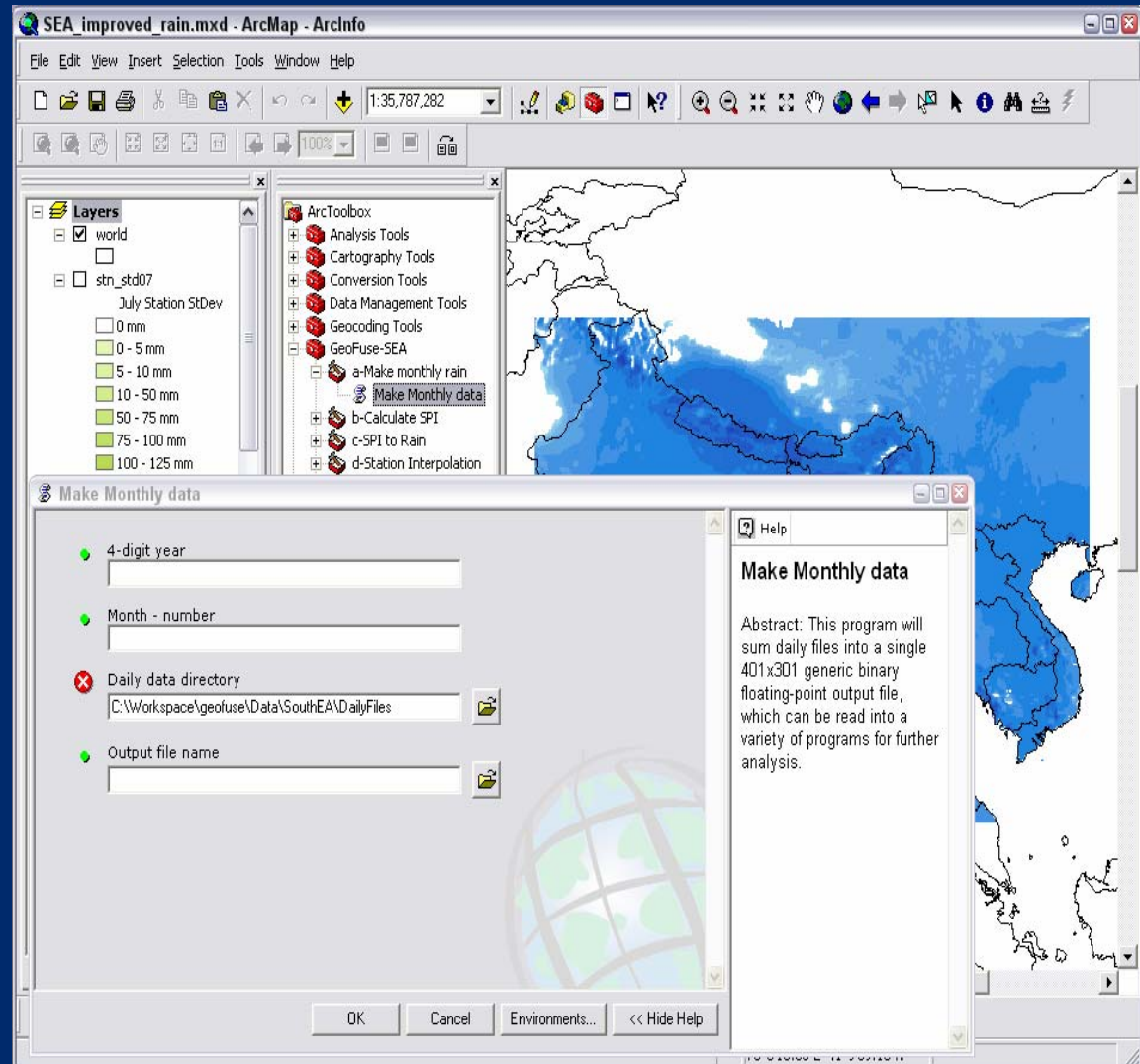
Greg Husak

## GeoFuse

- Improvements RFE
- Rainfall anomalies monitoring

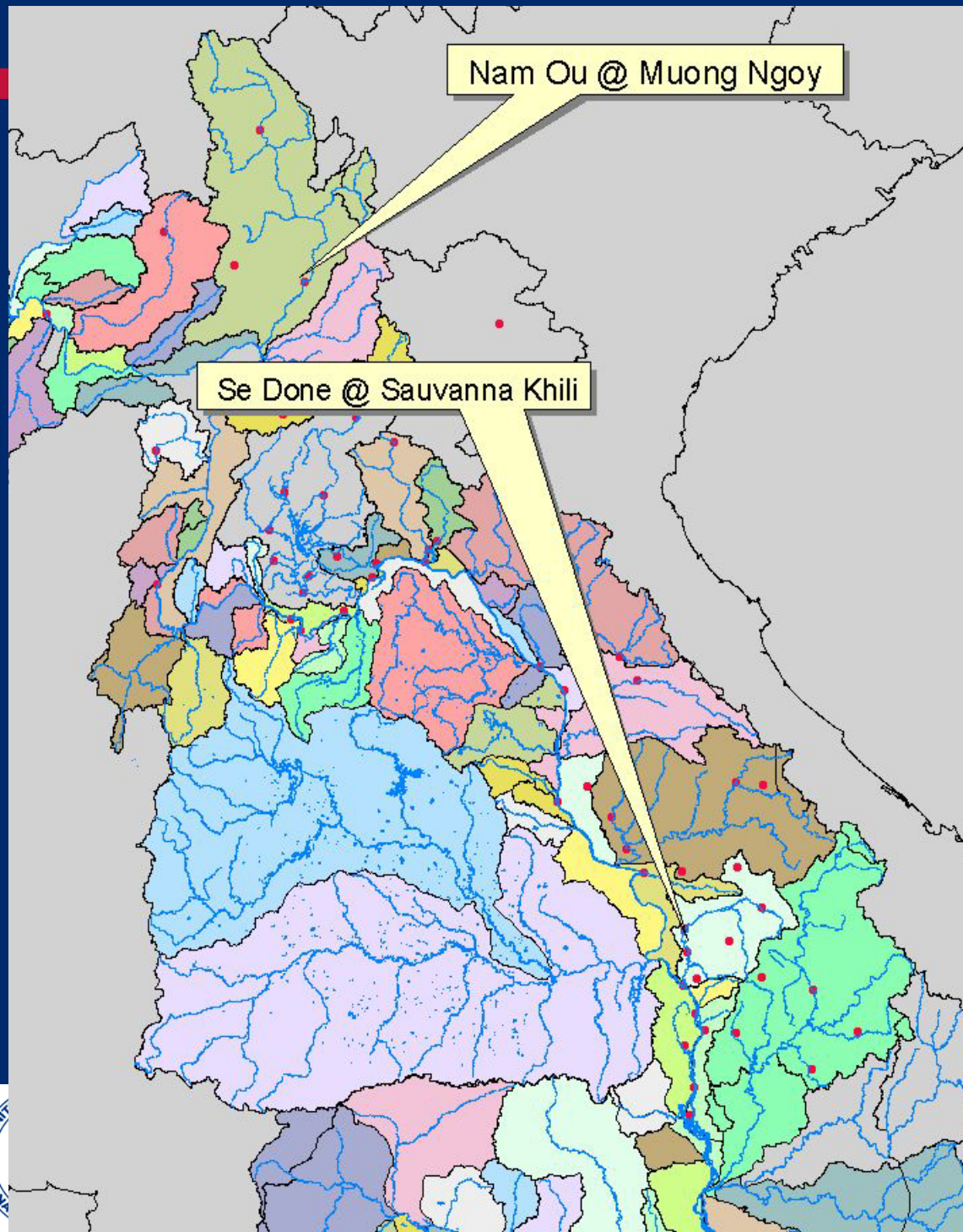
- ARC toolbox has been developed to:

- Create SPI from RFE
- Back out rainfall values from SPI using long-term parameter fields
- Input station data to modify rainfall fields
- To monitor drought conditions via the SPI





# Flood Forecasting: GeoSFM: Modeling Area



Guleid Artan

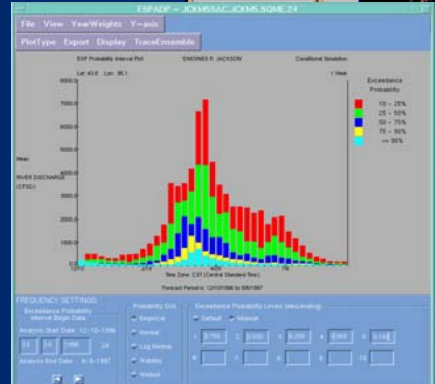
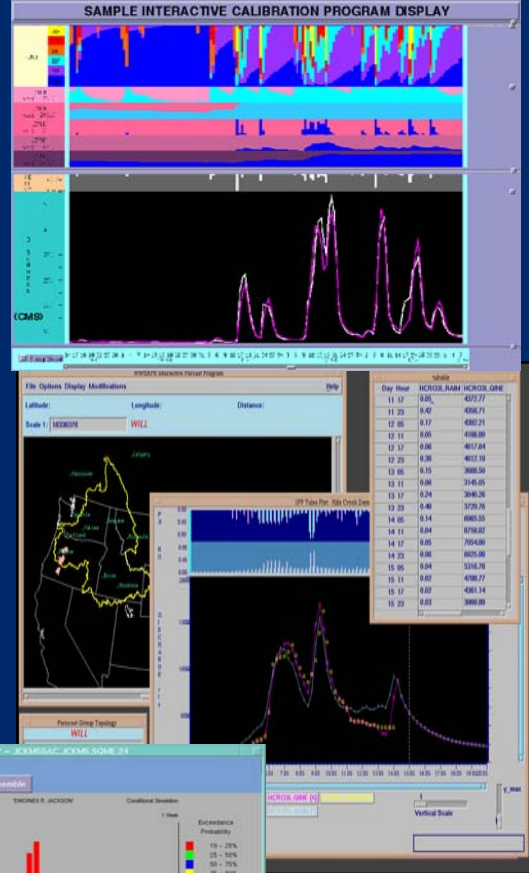
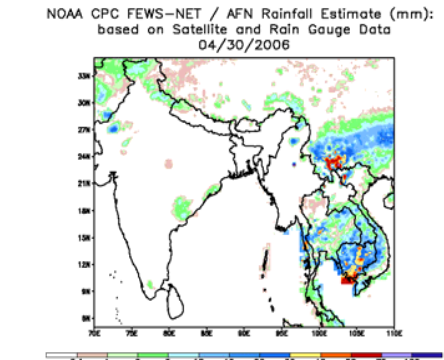
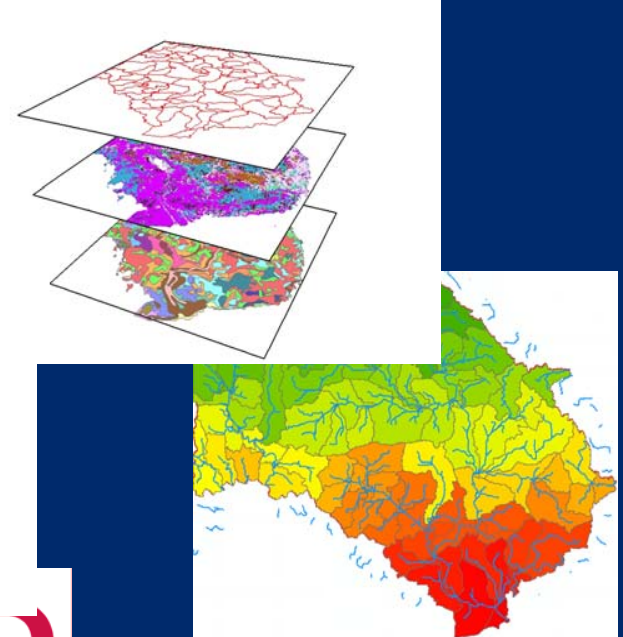
GeoSFM

Utility of the  
RFE for flood  
forecasting in  
the Mekong  
environment

# Flood Forecasting: Hybrid Flood Forecast System – NWSRFS Features

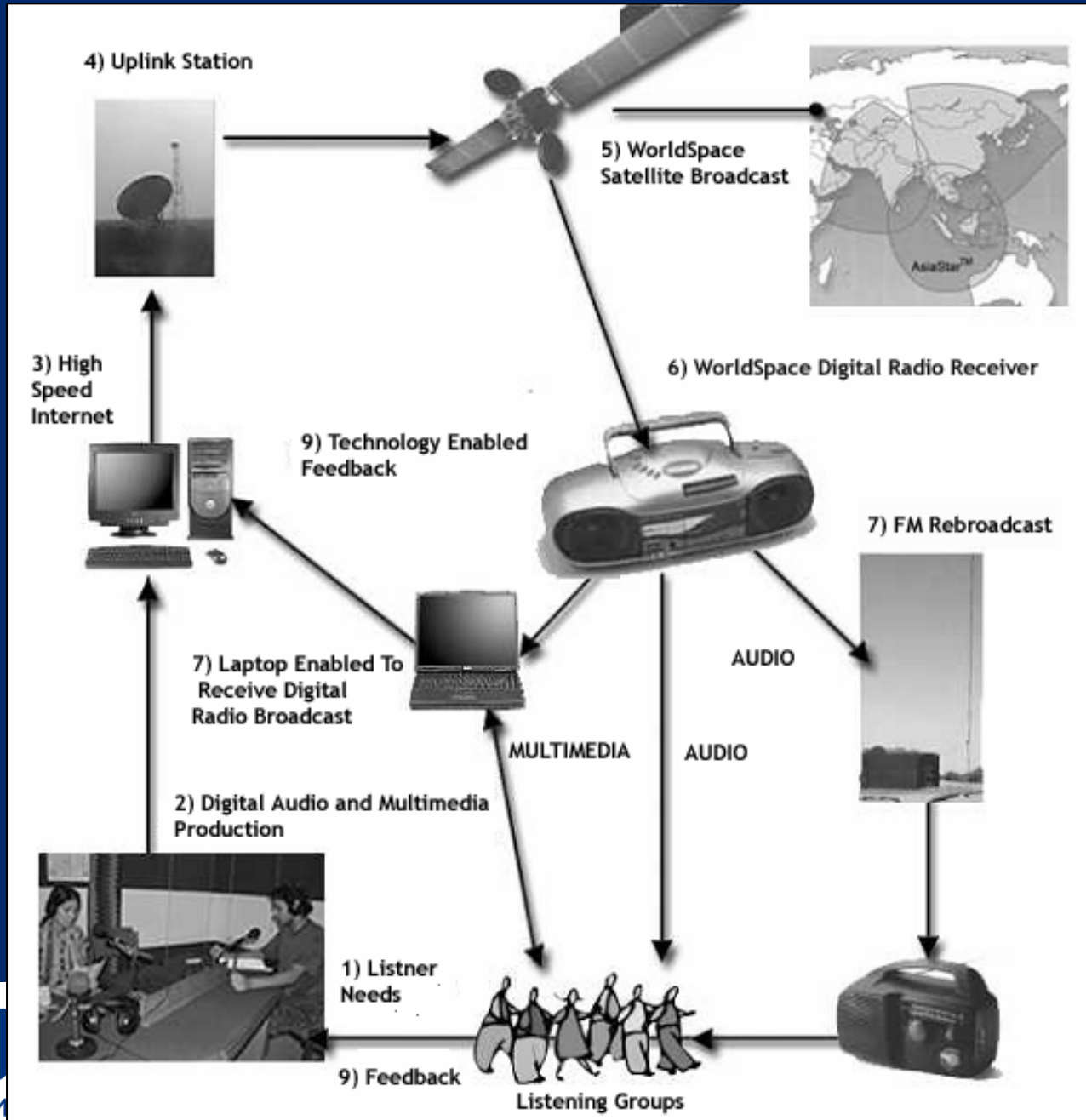
Jay Day

- Interactive Forecast Component
- Model Calibration Component for Parameter Estimation and Planning Studies
- Ensemble Streamflow Prediction
- Full Suite of Models (Rainfall/Runoff, Snow, Routing, Reservoirs, Diversions, etc.)



# Dissemination of information to population at risk: RANET

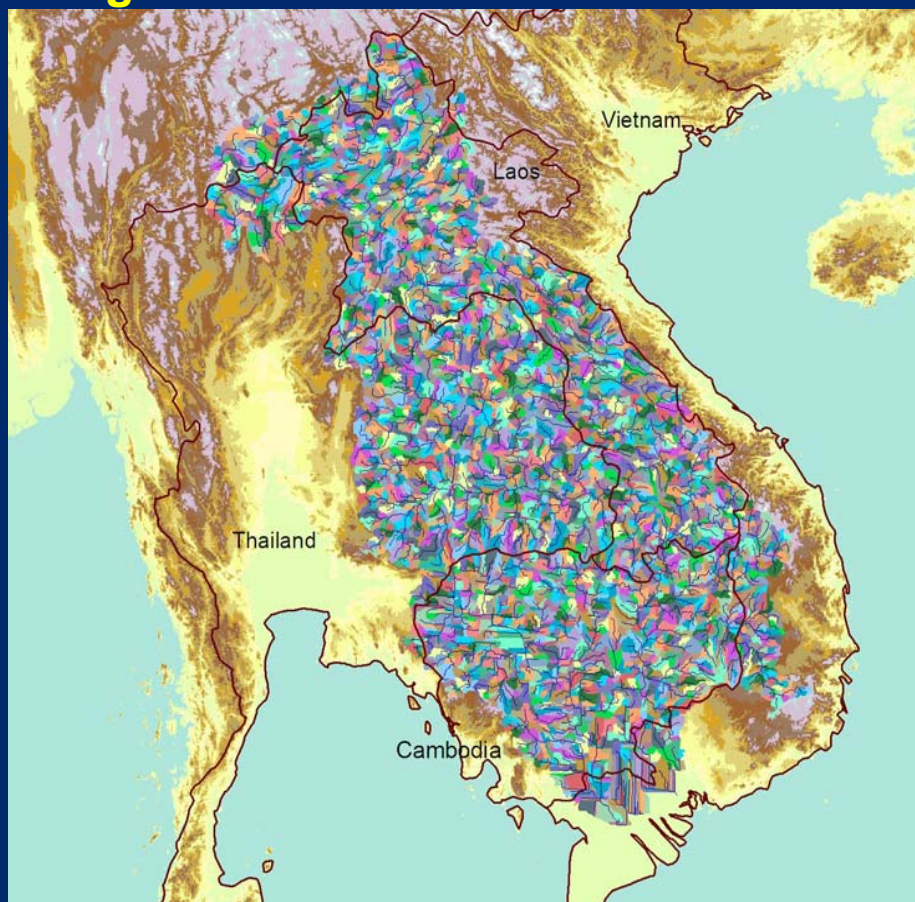
Kelly  
Sponberg



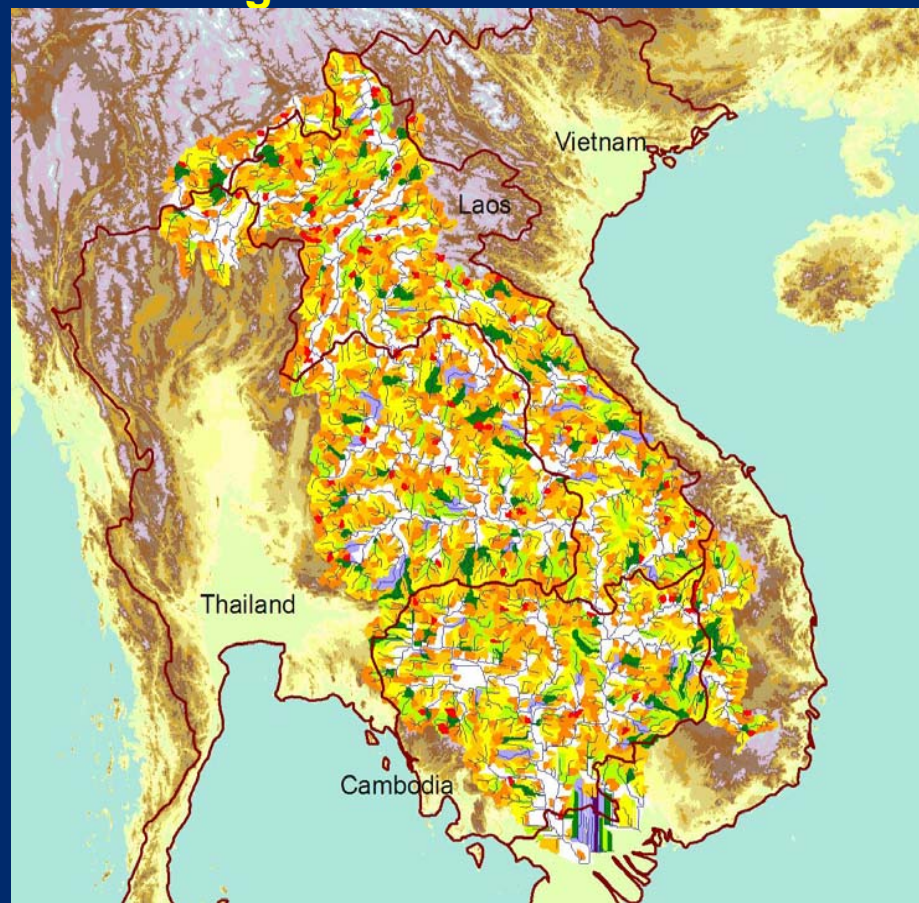
# Potential Regional Flash Flood Warning System

Robert Jubach

## Diagnostic Tool for Flash Flood Alerts and Warnings



**LMRB Delineated Basins**  
(100-300 km<sup>2</sup>)



**LMRB 1-Hour Flash Flood**  
**Guidance**

# Flash Flood Guidance and Warning System Demonstration

demonstration

