Program on Integrated Assessment Model Development, Diagnostics and Inter-Model Comparisons (PIAMDDI): An Overview

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What is the PIAMDDI?
A new DOE Office of Science sponsored program designed to improve the use and usefulness of integrated assessment models through

1. Cutting edge research in five key areas:
   – Technology
   – Uncertainty
   – Impacts and Adaptation
   – Regional Integrated Assessment
   – The Energy, Water, Land Nexus

3. A Research Program on IAM Diagnostics
4. A Research Program on IAM Model Comparisons
Who is on the Research Team

• Three Project Co-Directors
  – Noah Diffenbaugh, Stanford University
  – Karen Fisher-Vanden, Penn State University
  – John Weyant, Stanford University

• 19 PIs at 8 Universities and 2 National Laboratories (see Following project list)
Structure of Research Consortium

• 10 Individual Projects in the Five Research Areas
• 5 Diagnostics and Model Inter-Comparison Research Projects
• A Process for Integration Across the Fifteen Projects
• Several Mechanisms for Outreach to the Broader Research Community
Focus Area #1: Advance the science in five selected areas
Research Area #1: Science and technology

RP #1: *Economics of Technological Change*
Karen Fisher-Vanden, Penn. State University
David Popp, Syracuse University
Ian Sue Wing, Boston University

RP#2: *Advanced Technology Assessment*
Sally Benson, Stanford University
John Weyant, Stanford University
Research Area #2: Impacts and adaptation

RP #3: *Importance of fine-scale climate processes for impacts/adaptation*
Noah Diffenbaugh, Stanford University
Tom Hertel, Purdue University
Ximing Cai, University of Illinois

RP#4: *Links between adaptation and technological change*
David Popp, Syracuse University
Karen Fisher-Vanden, Penn State University
Ian Sue Wing, Boston University
Research Area #3: Regional integrated assessment modeling

RP#5 Testing the Importance of Fine-Scale Climate Processes for Regional-Scale IAMs
Noah Diffenbaugh, Stanford University
Tom Hertel, Purdue University
Ximing Cai, University of Illinois

RP#6: Regional IA Modeling of Climate Change Impacts
Karen Fisher-Vanden, Penn. State University
Ian Sue Wing, Boston University
James Shortle, Penn. State University
Research Area #4: Key intersecting energy-relevant systems

RP #7: *New Capability in Climate/Land/Water/Energy Modeling*
   - Noah Diffenbaugh, Stanford University
   - Tom Hertel, Purdue University
   - Ximing Cai, University of Illinois

RP #8: *The Implications of Renewable Energy Resource Abundance and Land Use Opportunity Costs for the Expansion of Renewable Electricity*
   - Ian Sue Wing, Boston University
Research Area #5: Uncertainty

RP #9: *Modeling Decision Making Under Uncertainty*

Mort Webster, MIT
Ian Sue Wing, Boston University
Karen Fisher-Vanden, Penn State University

RP #10: *Improving the Representation of Potential Climate Thresholds and the Associated Uncertainties in IAMs*

Klaus Keller, Penn State University
Chris Forest, Penn State University
Focus area #2:
Inter-model testing and diagnostics

RP #11: Development of Methods for Inter-Model Comparison and Diagnosis
Bill Collins, LBNL, UC Berkeley
Noah Diffenbaugh, Stanford University
Chris Field, Stanford University
Ben Santer, Lawrence Livermore Laboratory
Karl Taylor, Lawrence Livermore Laboratory
John Weyant, Stanford University

RP #12: New Methods for Inter-Model Testing and Diagnostics
Patrick Reed, James Shortle, Thorsten Wagener, PSU
Focus area #3: Ensemble-like analyses

RP #13: Development of Principles for Ensemble Construction

Bill Collins, LBNL and UC Berkeley
Noah Diffenbaugh, Stanford University
Chris Field, Stanford University
Ben Santer, Livermore National Laboratory
Karl Taylor, Livermore National Laboratory
John Weyant, Stanford University
Ensemble-like analyses (Continued)

RP #14: *Project on Model Comparison on Uncertainties*
Bill Nordhaus, Yale University

RP #15: *Regional Prediction Uncertainties for Impacts Research*
Chris Forest, Penn State University
Klaus Keller, Penn State University
Patrick Reed, Penn State University
Thorsten Wagener, Penn State University
Thank You