MICROBIAL MEDIATION OF FLOODPLAIN LANDSCAPE Ecosystem Biogeochemistry

Focus II: Linking Ecosystem Processes to Landscape Patterns

Geoffrey Poole
Montana State University
OVER-ARCHING RESEARCH QUESTION

How do floodplain hydrology and microbially-mediated biogeochemistry interact to influence ecosystem processes in floodplain landscapes?
**OVER-ARCHING RESEARCH QUESTION**

How do floodplain hydrology and microbially-mediated biogeochemistry interact to influence ecosystem processes in floodplain landscapes?

– Addresses Focus II
– Links to Focus I
– Links to Focus III
OVERVIEW OF APPROACH

• Year I: Organization – identified and refined questions and approaches, team building
• Year II: Infrastructure – software tool development
  – Model development tools
  – Visualization tools
• Year III: Linking to Focus I – field sampling microbial assemblages and associated metabolic pathways
• Year IV: Landscape/ecosystem processes – integrating hydrology and biogeochemistry
• Year V: Linking to Focus III – strategic simplification of modeling approaches.
# Collaboration

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
<th>Expertise</th>
<th>Affiliation</th>
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<tbody>
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YEAR II ACTIVITIES

Software development
  – Graphical user interface
  – Uncertainty Quantification Framework
  – Visualization

• Initial field work
  – Research design
  – Sampling

• Outreach
  – “MSU Minute” at Museum of Rockies Taylor Planetarium
FLUX NETWORK MODELING USING "NETWORK EXCHANGE OBJECTS" (NEO)
YEAR II ACTIVITIES

• Software development
  – Graphical user interface
  – Uncertainty Quantification Framework
  – Visualization
• Initial field work
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  – Sampling
• Outreach
  – “MSU Minute” at Museum of Rockies Taylor Planetarium
UNCERTAINTY QUANTIFICATION FRAMEWORK
YEAR II ACTIVITIES

- Software development
  - Graphical user interface
  - Uncertainty Quantification Framework
  - Visualization
- Initial field work
  - Research design
  - Sampling
- Outreach
  - “MSU Minute” at Museum of Rockies Taylor Planetarium
INITIAL FIELD SAMPLING

Keenan Brame
YEAR II ACTIVITIES

- Software development
  - Graphical user interface
  - Uncertainty Quantification Framework
  - Visualization
- Initial field work
  - Research design
  - Sampling
- Outreach
  - “MSU Minute” at Museum of Rockies Taylor Planetarium
Acknowledgements

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