Intersection of Science and Air Quality Planning

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Isle Royale NP, MI


Boundary Waters Wilderness, MN

Air Quality Projects in the Science and Policy Domains

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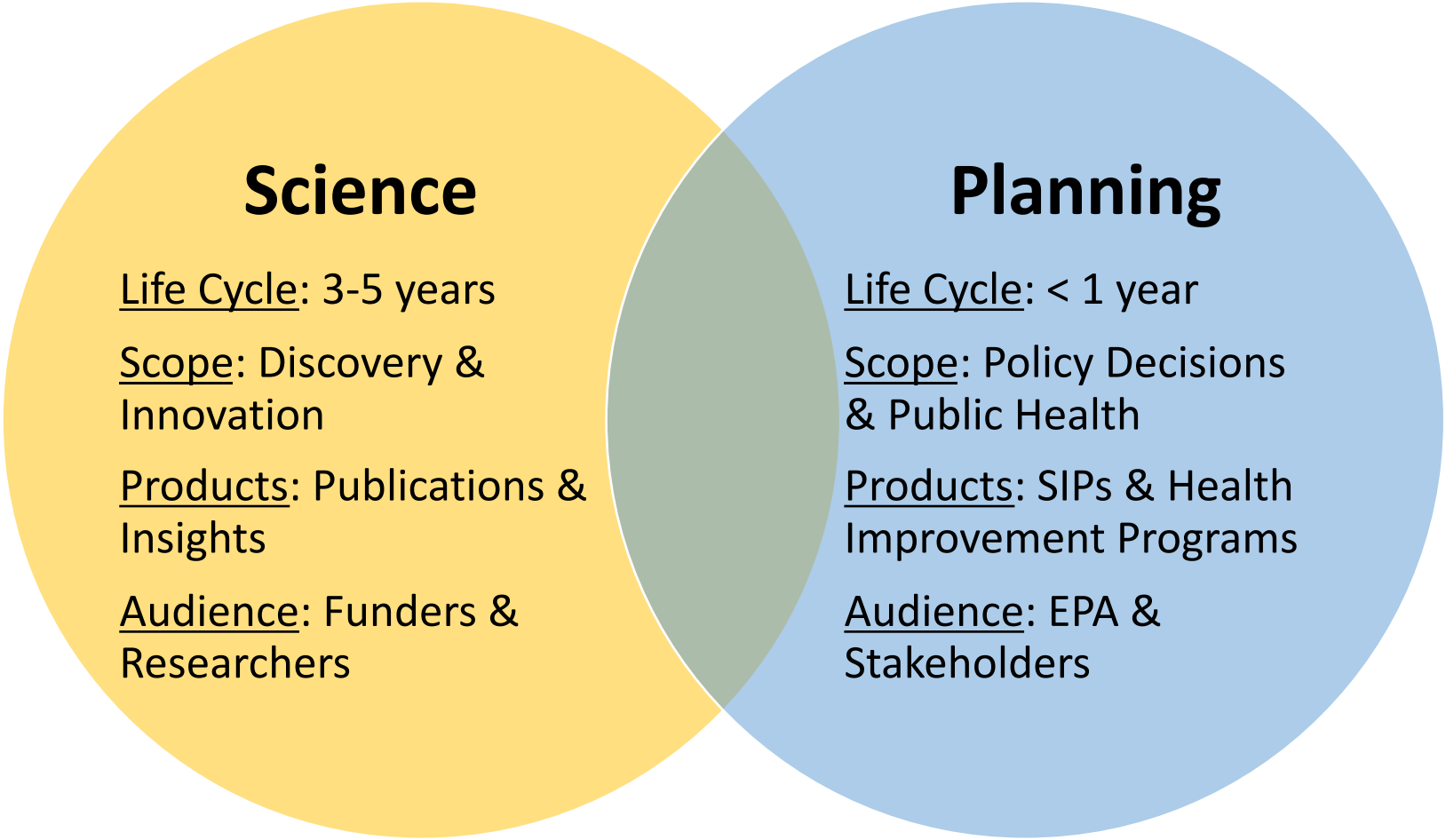

What is Applied Science?

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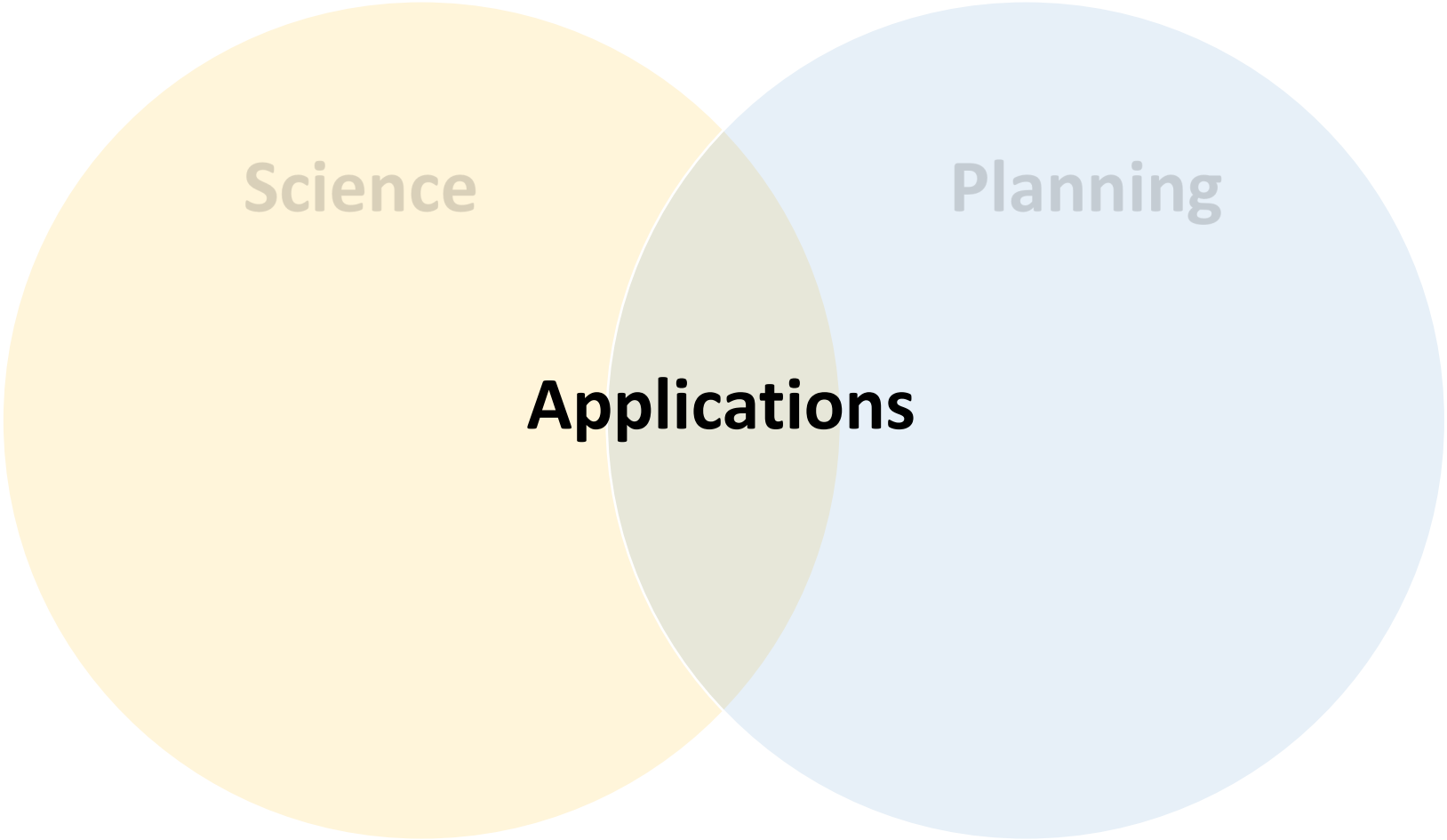

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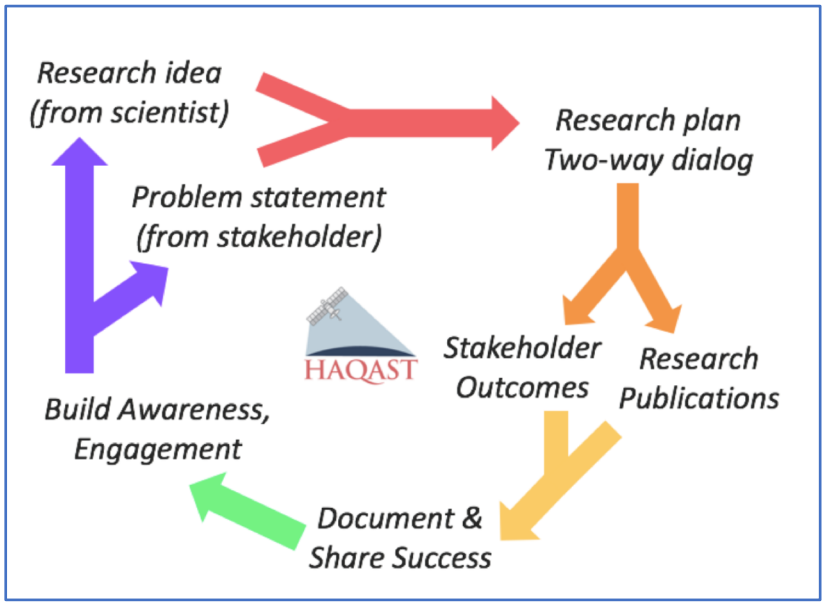

"Research that produces results that can be used by people making policy decisions."

"Where science creates knowledge."

Satellite Data in Action

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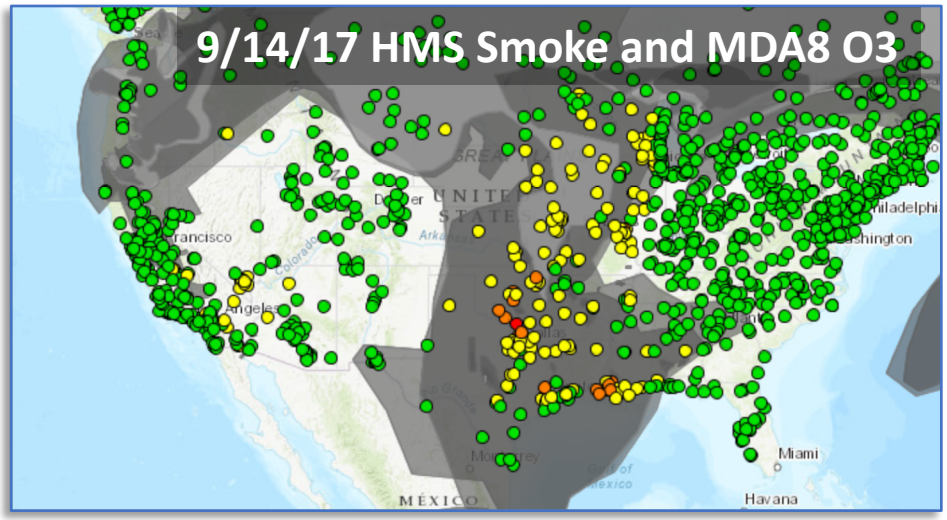
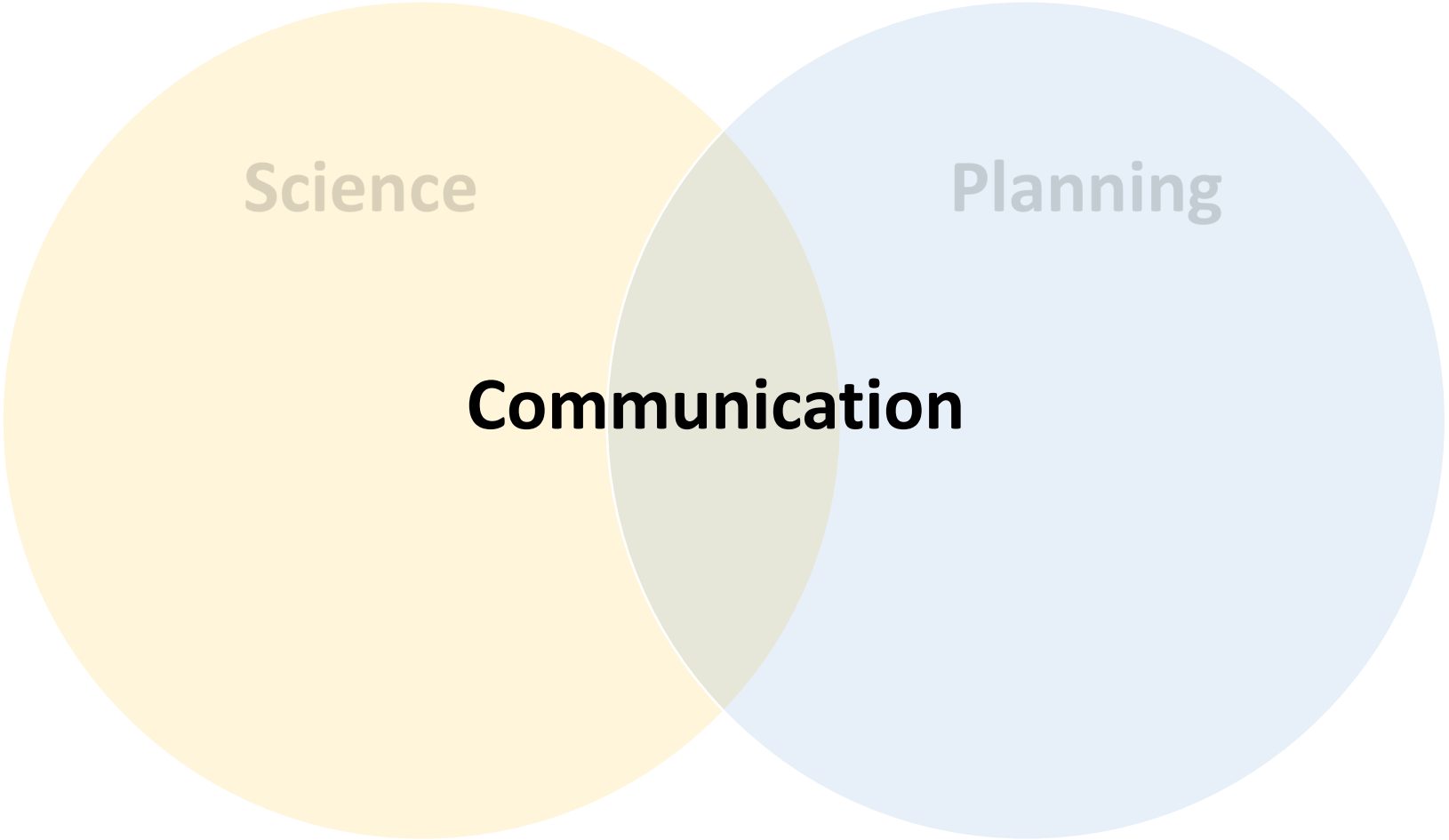
- How are planning agencies using satellite data now?
  - Tracking smoke from fires
  - Episode analysis
  - EE demonstrations
  - Boundary conditions
  - Trends analysis
- What's on the horizon
  - Improving emissions inventories
  - Chemical data assimilation in regional AQMs
  - Data fusion across observational assets (sensors to satellites)
  - Stay tuned…



Communication Creates Applications



Communication Creates Applications

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Communication is what distinguishes traditional research from applied science

Key Questions

- What is the role of communication in applied science?
- How do you create effective communication?
- What does effective communication look like?
- Can effective communication be measured/evaluated?
- How do you ensure timely communication?

Communication Principles for Applied Science Projects

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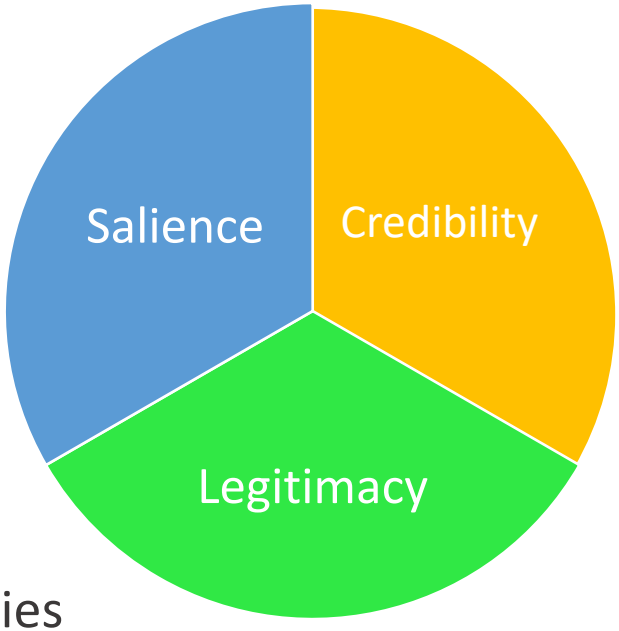
- Milford and Knight (2017)
- Engage all parties to the project at all phases, including study design and final use-cases
- Build trust and familiarity
  - In-person meetings early on in the project
  - Regular, monthly meetings
- Bridging organizations, information brokers, communication coordinators
- Listening sessions
  - Understand timing, objectives, and capabilities of team members



Preconditions for applied science

Cash, et al., 2003

Programmatic Goals

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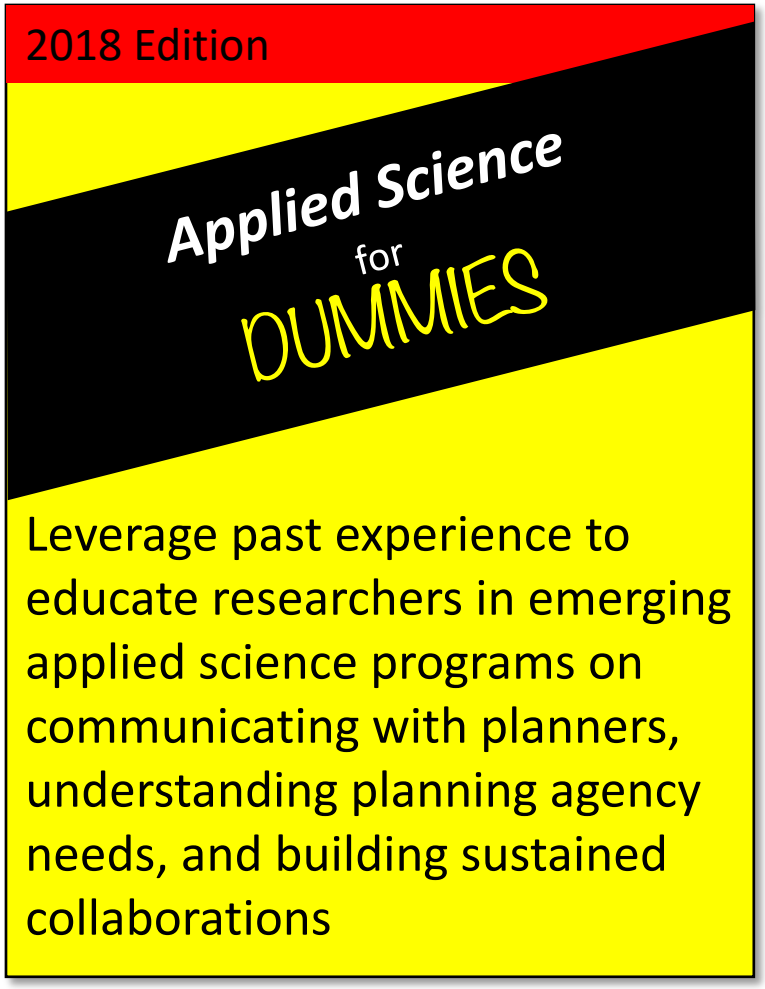

- Develop consensus on what applied science is (and isn't) with metrics for tracking
- Identify and engage bridging organizations to expand planning agency engagement
- Incentivize researchers to look beyond publications as measures for success
- Sustained outreach and training programs
- Create an advisory panel for applied science projects that includes the program office, PIs, and planning agencies
  - Problem ID, long term strategy, relationship building

Future Project Goals

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- **Create saliency.** How to integrate remote sensing in the mission of the environmental management/health agency?
- **Create legitimacy.** How to solidify the use of these assets/analysis techniques in the planning process such that they become integral to future forms to the Clean Air Act?
- **Create demand.** How to create extensible, reproducible, planning-agency friendly processes for using remote sensing data?
- **Understand the paradigm.** Commit to and invest in the concept that applied science is a process as much as it a product.