

Intersection of Science and Air Quality Planning

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Presented at HAQAST4

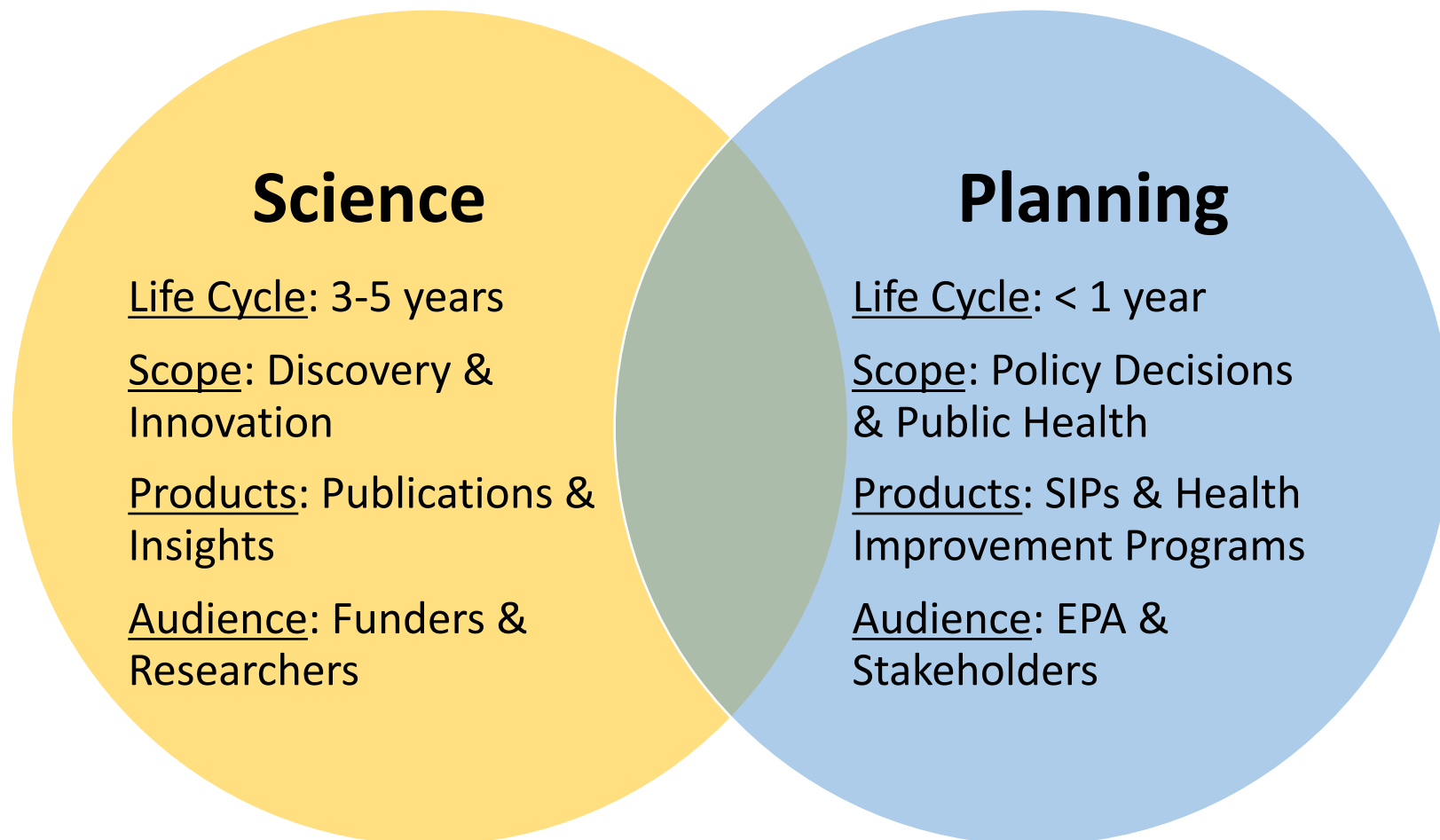
Madison, WI

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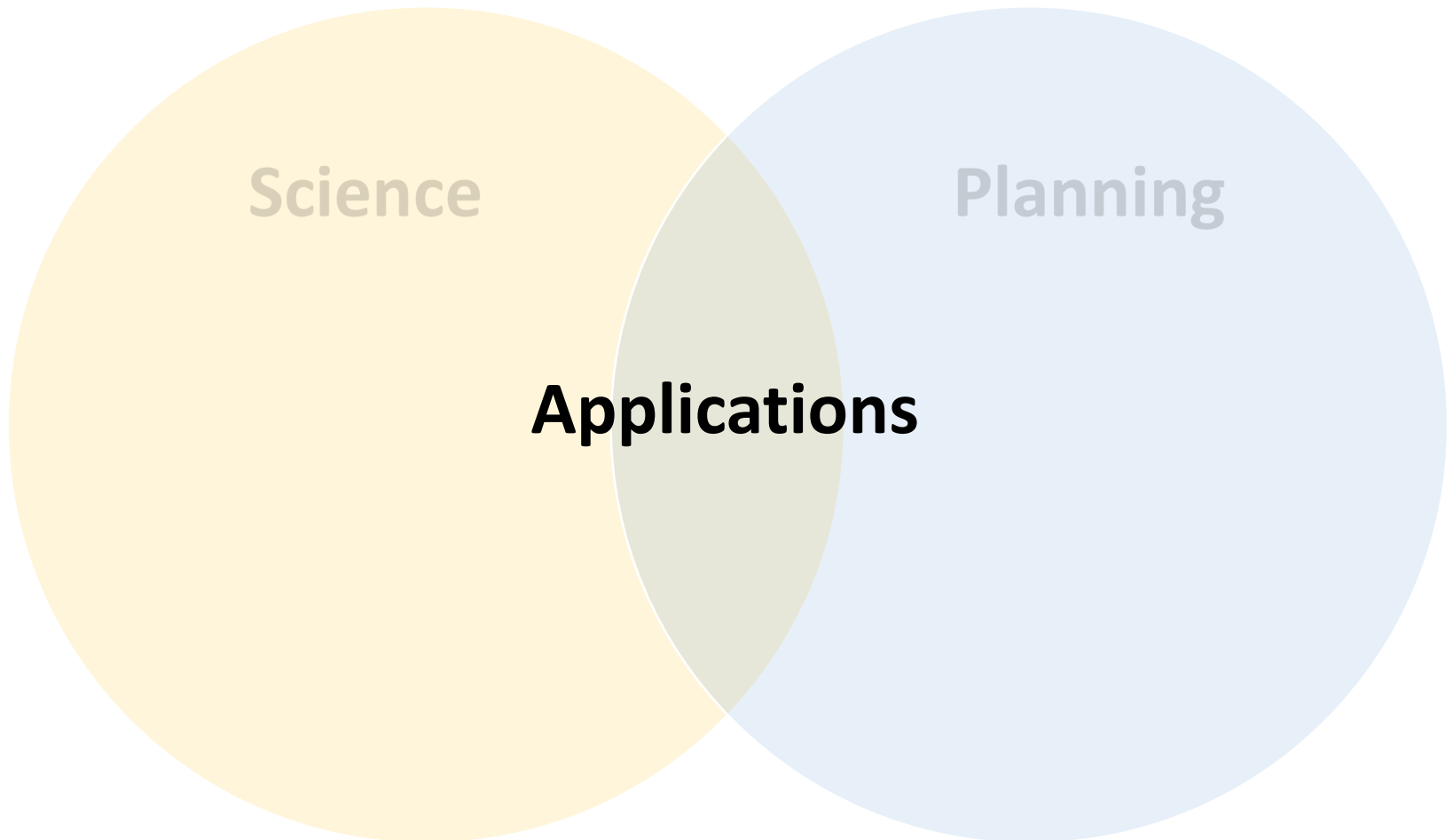
Air Quality Projects in the Science and Policy Domains



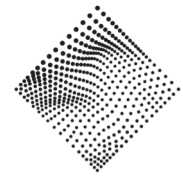
What is Applied Science?



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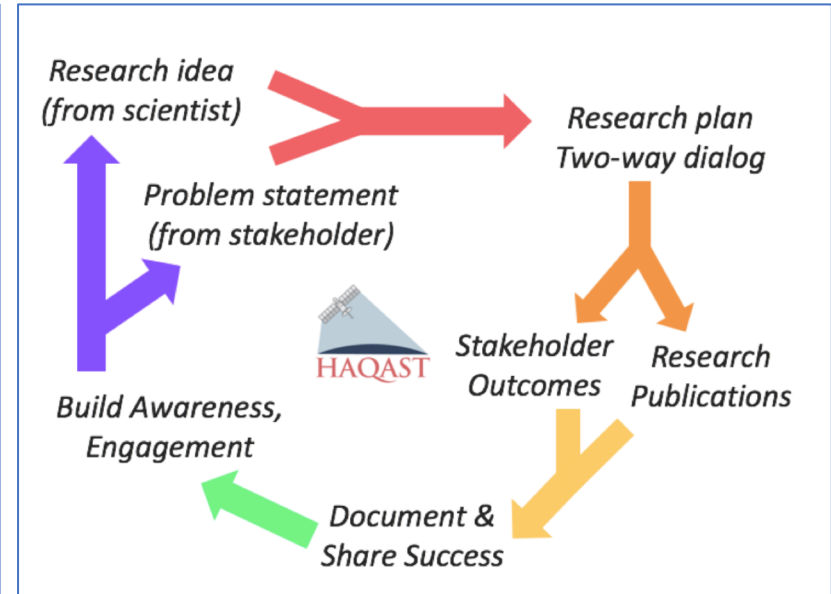


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APPLIED SCIENCES

We work with partners to apply insights from Earth science. We help them combine data, knowledge, tools, and experience to develop solutions and enhance decisions.



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

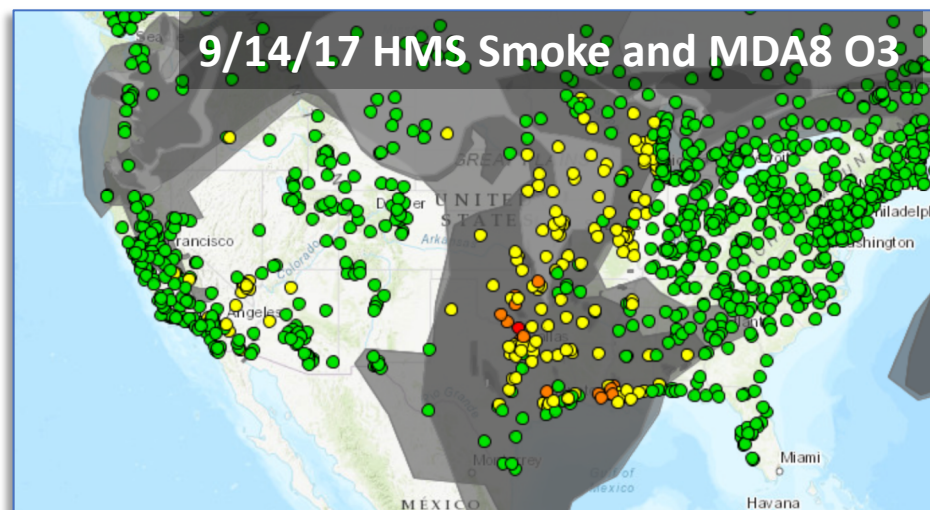
“Where science creates knowledge.”

Satellite Data in Action

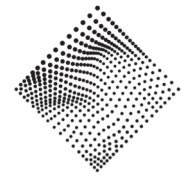


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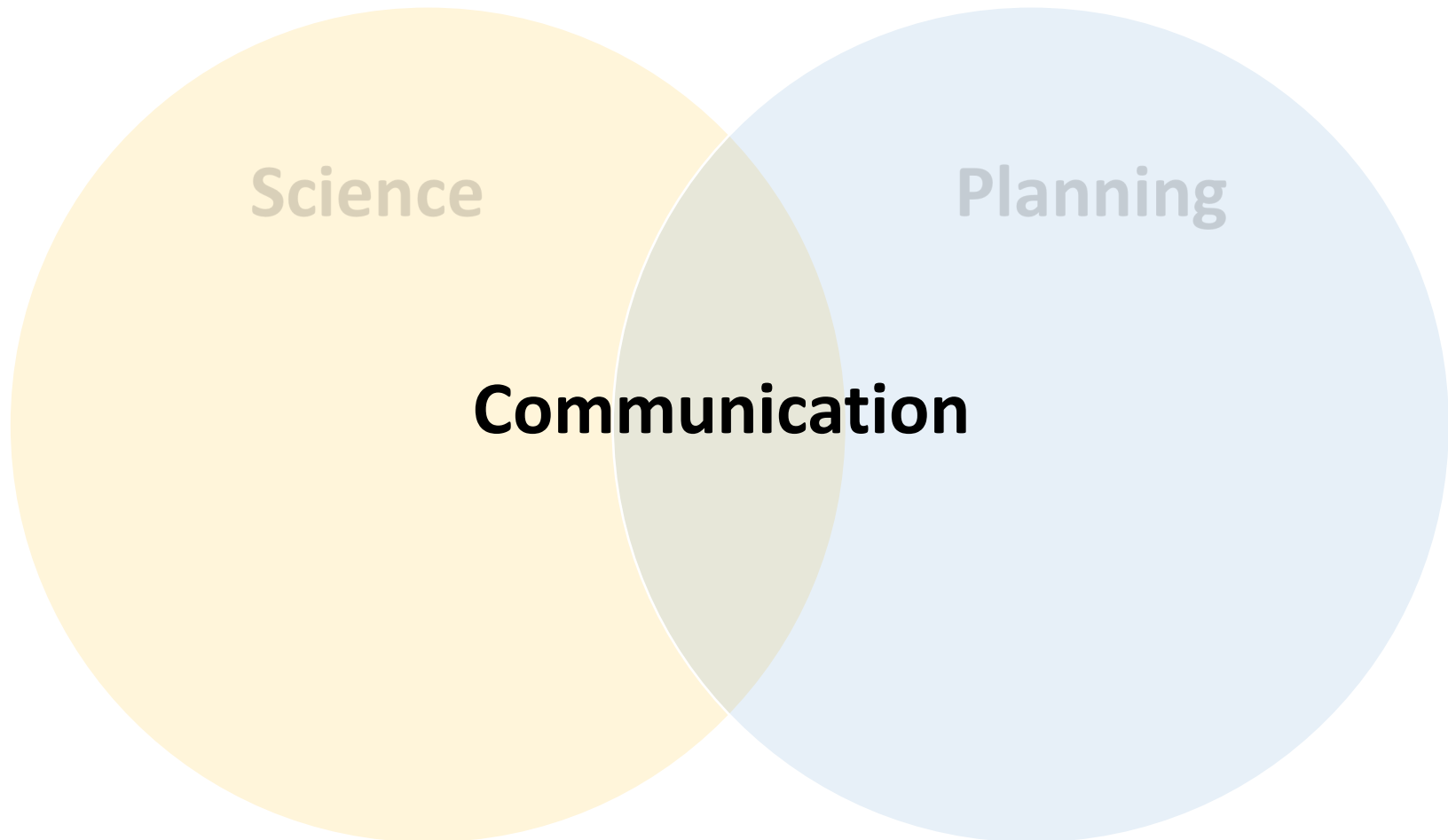
- How are planning agencies using satellite data now?
 - Tracking smoke from fires
 - Episode analysis
 - EE demonstrations
 - Boundary conditions
 - Trends analysis
- What's on the horizon
 - Improving emissions inventories
 - Chemical data assimilation in regional AQMs
 - Data fusion across observational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



Communication Creates Applications



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Communication Creates Applications

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

- 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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2018 Edition

Applied Science for DUMMIES

Leverage past experience to educate researchers in emerging applied science programs on communicating with planners, understanding planning agency needs, and building sustained collaborations

- 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.