



The NOAA Pathfinder Initiative and Value Studies: How User Needs Bring Added Value to Satellite Services

National Environmental Satellite,
Data, and Information Service

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User Engagement - Impact Centric Framework

Evidence-based discipline that helps us to learn about the **needs, challenges, and work environment** of those we serve so that we can provide the **actionable, accessible** and **impactful** products and services to our customers using a variety of social science and related disciplines.



You've got to start with the customer experience and work back toward the technology - not the other way around.

(Steve Jobs)

Less: “Here is a product I developed. How can it help you?”

More: Focus on tasks users are trying to accomplish

A Future Mission with Pathfinders: GeoXO

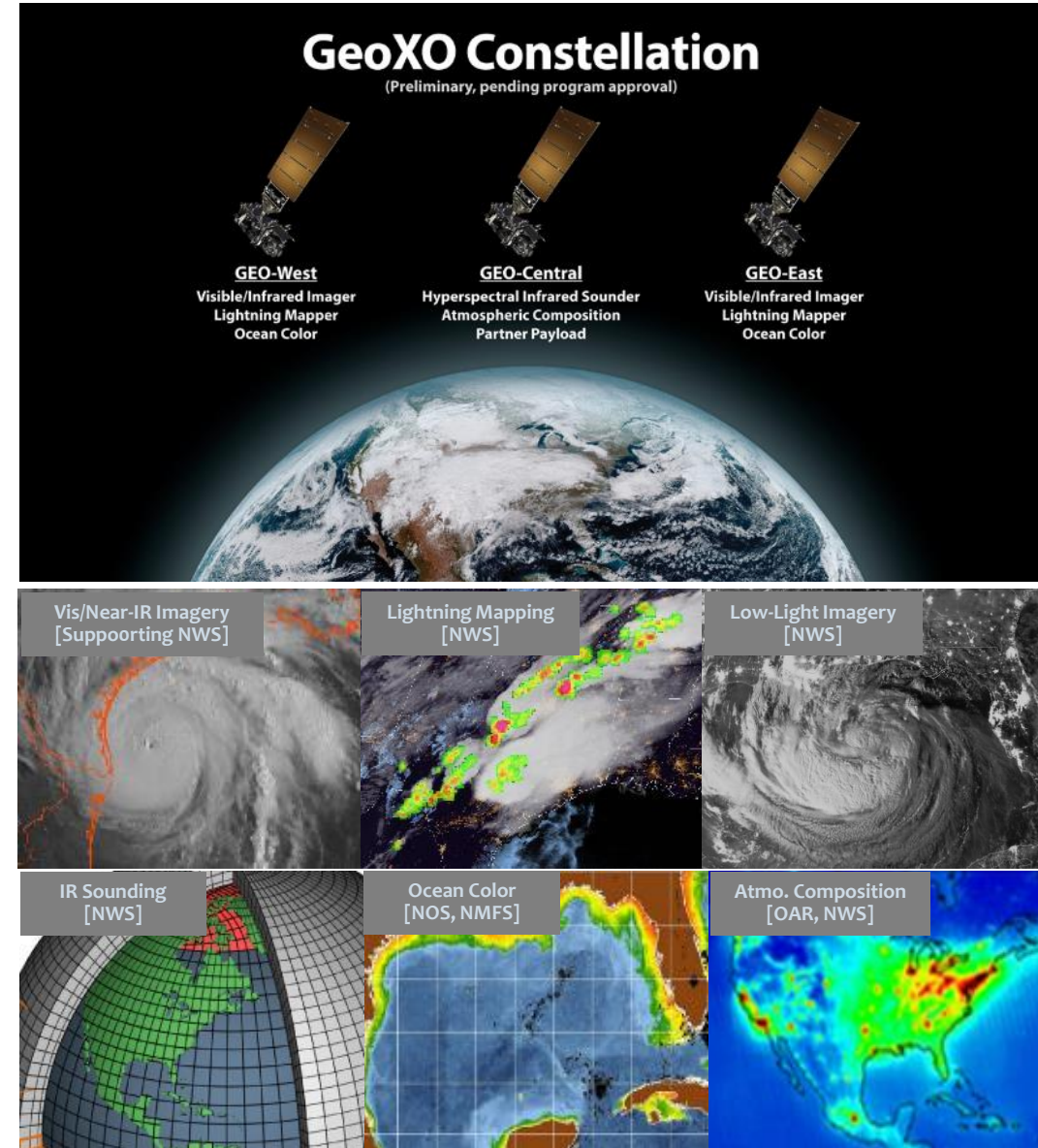
To support the User Readiness and Engagement for the 5 GeoXO Sensors, GeoXO Program Science developed the Science Working Groups (SWGs).

For each sensor, there is a:

- Instrument Scientist - Support instrument formulation
- Product Scientist - Support L2 development
- User Scientist - Connect GeoXO to NOAA and external Users

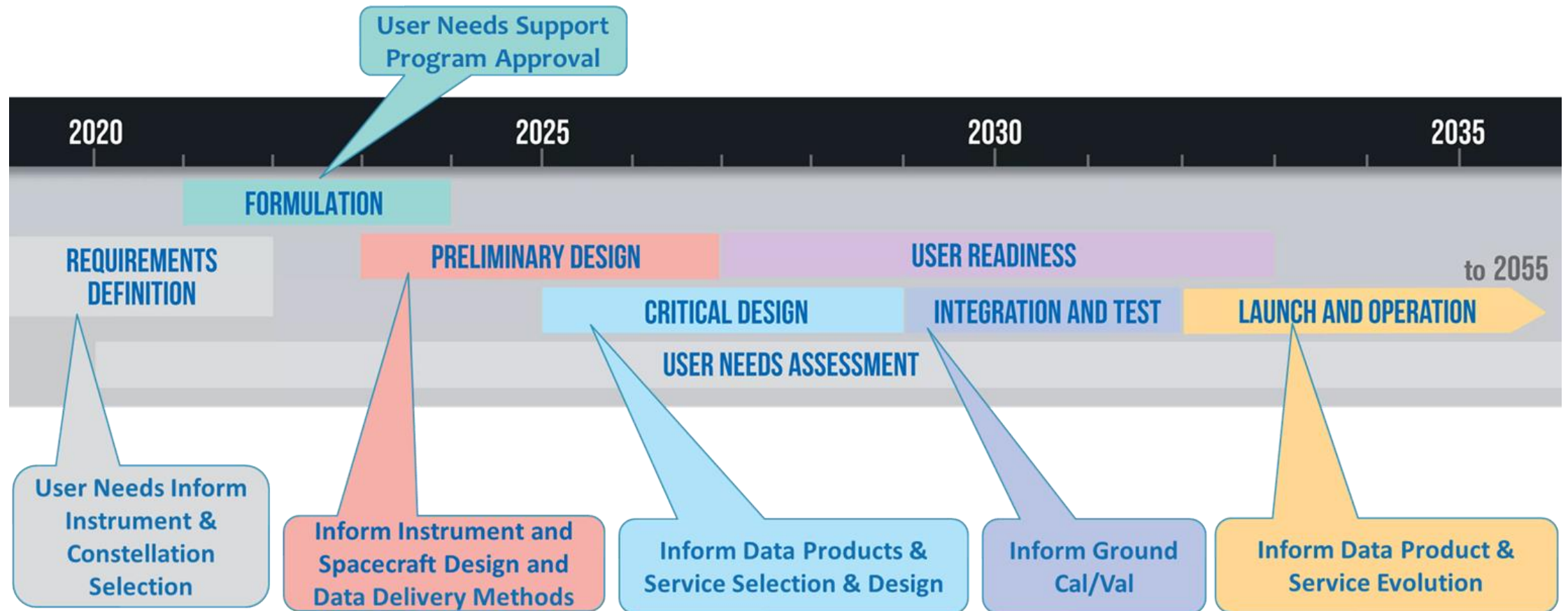
SWG Scientists and their teams provide the following support:

- Provide support to the Program during instrument formulation.
- Connection of GeoXO Program Science to all NOAA Line Offices and Stakeholders.
- Advising GeoXO on planning User Readiness Activities
- Helping the GeoXO Economist establish the GeoXO Return on Investment.
- Performing advocacy for GeoXO at conferences and workshops



GeoXO Continuous Engagement with Stakeholders and Users

Collect, exchange, and assess user information where users identify needs and capabilities and use gaps in different areas of society.

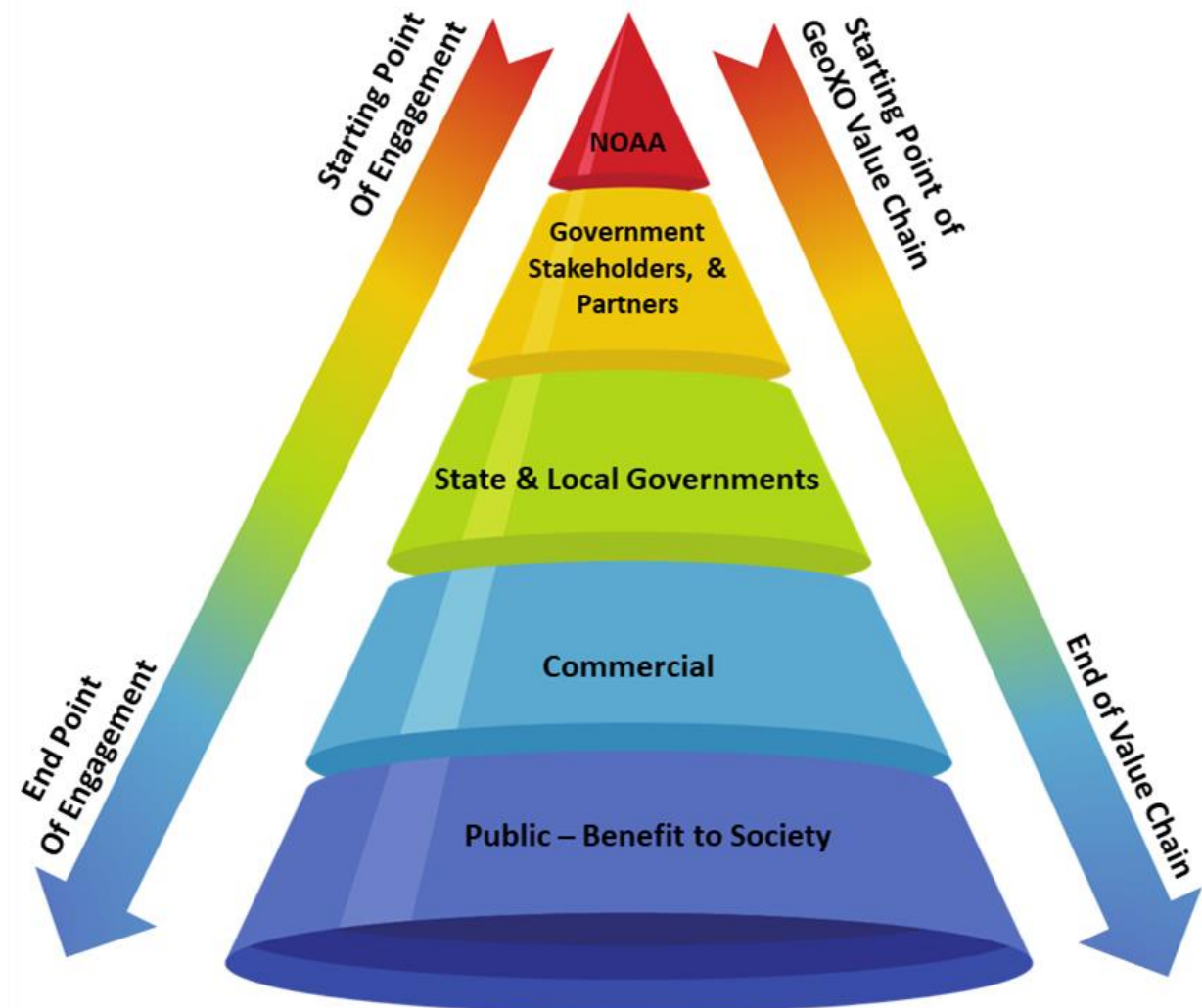


GeoXO User Engagement Plan

3 Phase Approach aligned with the mission life cycle:

- User Needs
- User Readiness
- User Sustainment

A living document that evolves with the mission goals and needs



User Readiness

Is a **process** and **actions** to exchange information from a program to a user to expand existing knowledge of user-needs, to understand all dimensions of preparedness, and to develop a complete understanding of the intent and scope for the execution of readiness management.



Expand GeoXO's existing knowledge in identified gaps, and to understand deployment methods necessary to understand **data, process, infrastructure, organizational** and **cultural readiness management**.



THE NOAA PATHFINDERS

The early adopters of future satellite observations

The NOAA PATHFINDERS INITIATIVE includes people and organizations which can demonstrate *how* the use of satellite data can improve our daily lives. GeoXO is the first NOAA mission to integrate the new Pathfinder Initiative into their mission development.

NOAA Pathfinders are the early adopters of future satellite data. They will work to support the mission teams during the pre-launch phases to prepare and be the first to *use* mission data after launch.

NOAA Pathfinders realize benefits for themselves while also enhancing the the knowledge of how satellite data impacts society.

How does your work impact society?





What do Pathfinders Gain?

- Direct interaction with the mission science teams for communicating impacts of the product will be used in areas of societal interest.
- Perspective into new mission product design
- Access to mission scientist for communicating improvements to future products
- Opportunities for training and pre-launch data prior to public release for optimal readiness

What do Pathfinders Contribute?

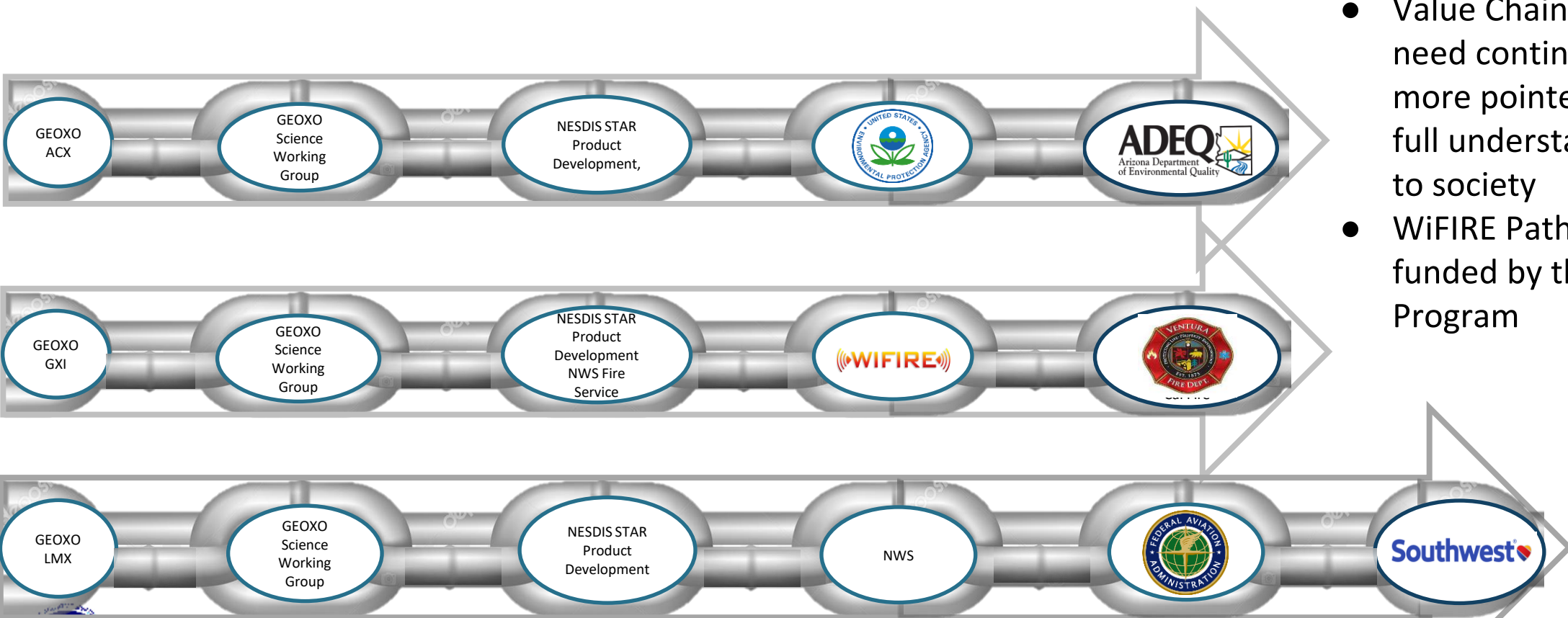
- Broader understanding of evolving needs in society
- Influential feedback on product uses and real-world decisions.
- More efficient ways of designing and delivering products to different user communities.
- Collaboration with local, national, international organizations
- Opportunities for training and pre-launch data prior to public release for optimal readiness



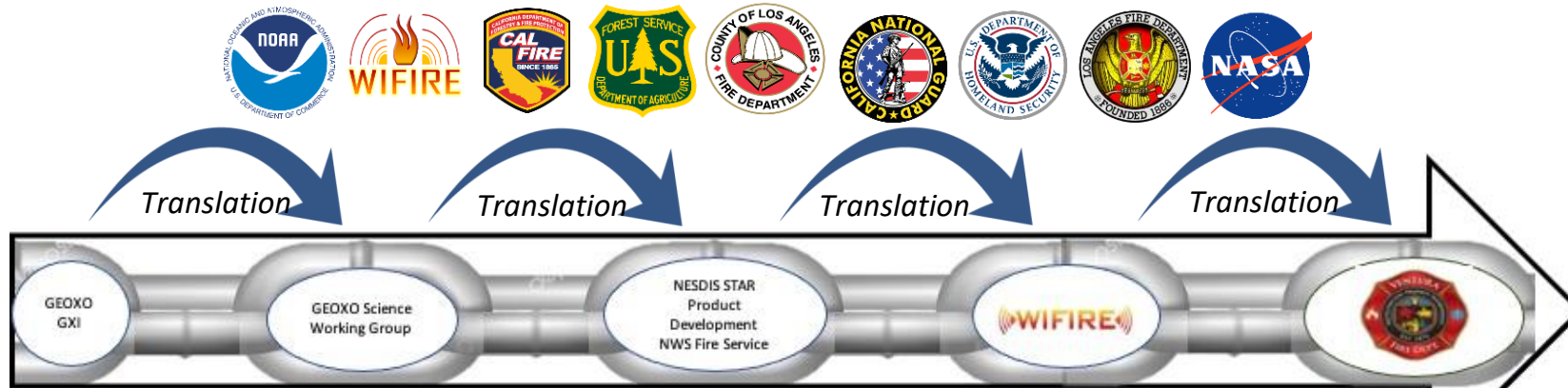
NOAA Pathfinder - Identify Value Chains

NOAA Pathfinders are non-NOAA users, that help develop value studies for the future applications of mission data.

- Leverages NASA Early Adopters and existing studies that were aligned with the GeoXO SWG
- Value Chains and Pathfinder need continued work to get more pointed benefits for a full understanding of benefits to society
- WiFIRE Pathfinder now funded by the NOAA Fire Program

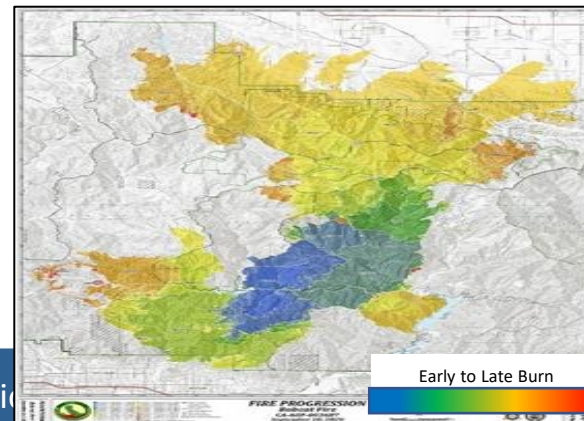
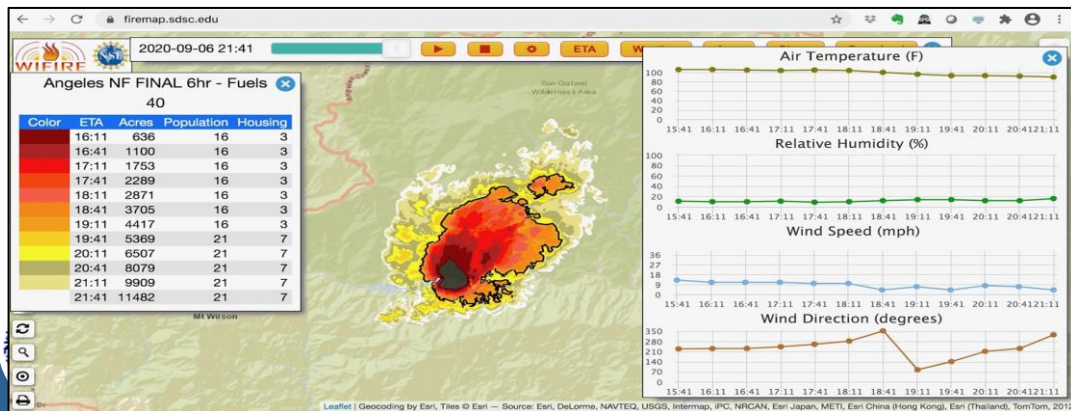
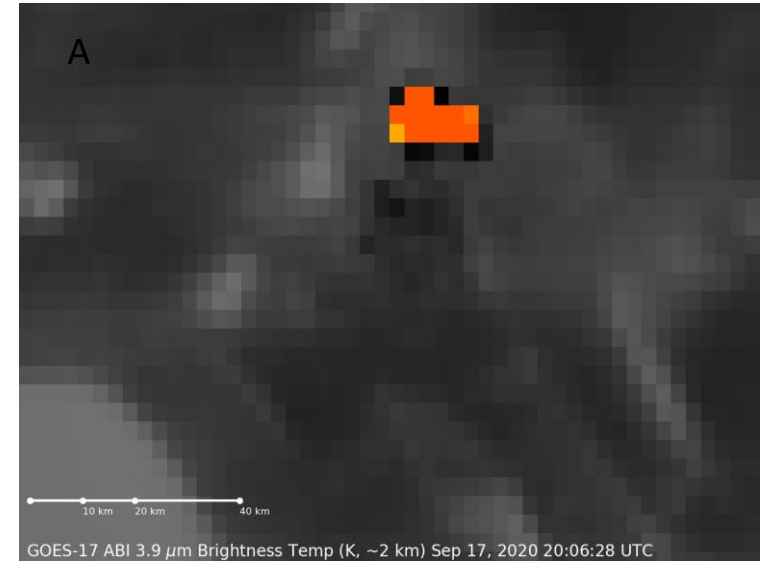


Example of Fire Pathfinder Efforts



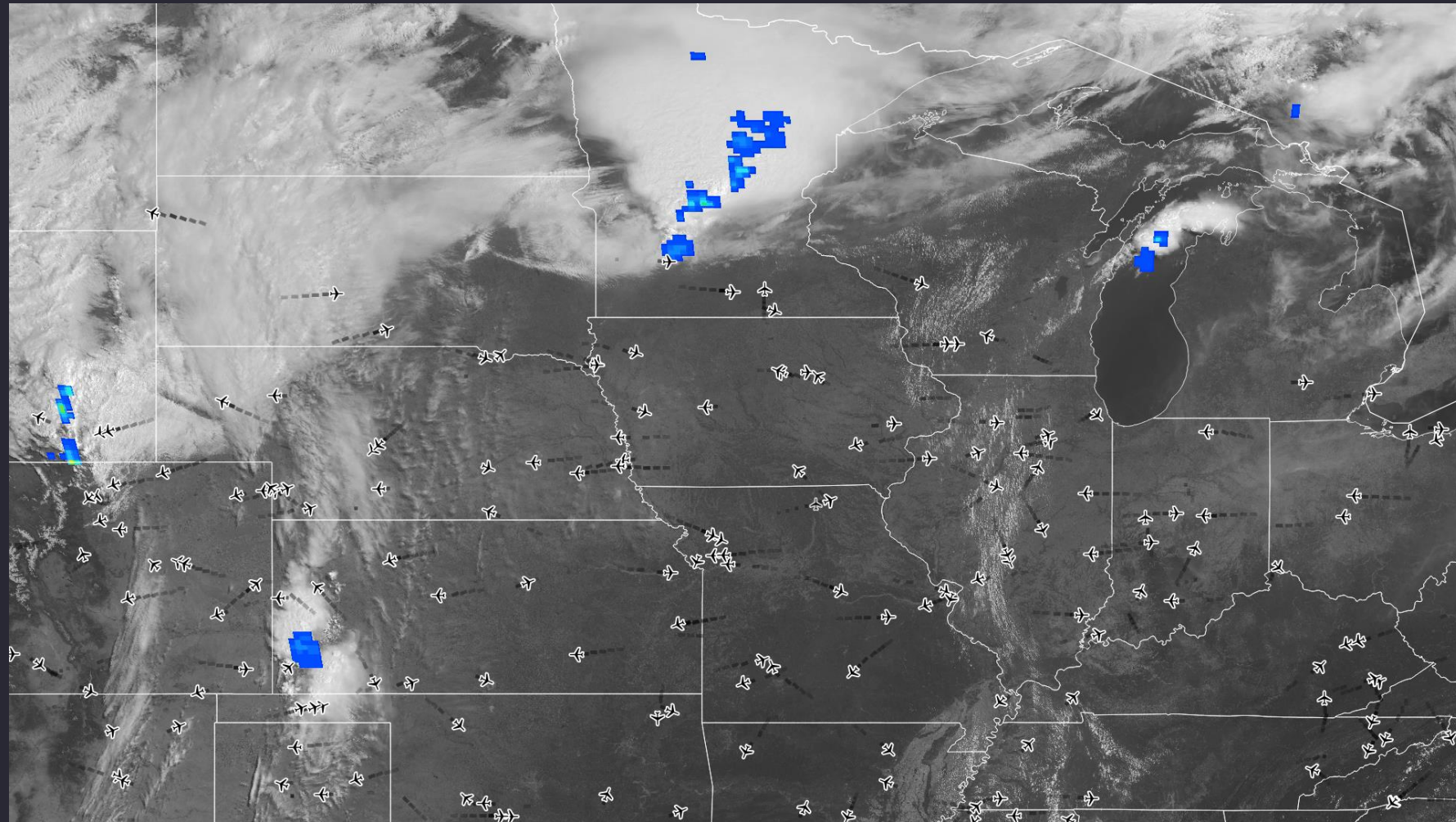
A notional Bobcat Fire scenario to explore fire preparedness, response, and fire-related satellite derived data and products. This scenario looked at the future GeoXO fire detection capabilities

- Forecast from FBANS and IMETS provides prediction for the day
 - Winds accelerate and fire accelerates in 2 directions
 - New models are run
- Use Satellite to track fire Growth
 - Use the tracking to dynamically re-route trucks in the field
 - Radiative Power from GOES 17 Simulated Animation (compare with GeoXO (B) simulation)



Example of Aviation Pathfinders: Blending Lightning and Imagery for Flight Planning

- GOES-18 GLM from May 12, 2022
- Plotted is GLM Flash Extent Density on top of ABI visible imagery, with flight locations overlaid
- Notice how the flights are routed around the areas of lightning, which highlights the stronger convective storms



Slide Courtesy of Dan Lindsey-GOES-R



Thank you!!!

For More information on the NOAA Pathfinder and how to join the NOAA Pathfinder Initiative:

<https://www.nesdis.noaa.gov/next-generation/noaa-pathfinder-initiative>

or

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