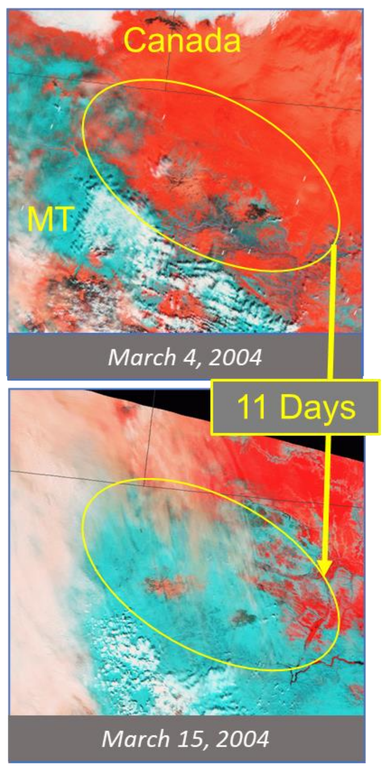
Short-term Prediction Research and Transition Center

SPoRT: "Translating science to user-centered products and capabilities that enable Earth Action"
Emily Berndt, Patrick Duran, Christopher Hain, Aaron Naeger, Christopher Schultz
NASA MSFC, Earth Science Branch

INTRODUCTION

- SPoRT was established in 2002 as part of the ESD R&A Weather Focus Area with the mission to accelerate the adoption of NASA Earth Science satellite data within the National Weather Service (NWS)
- Through intentional end user interaction, SPoRT has transitioned over 50 satellite products and capabilities to stakeholders over 20+ years
- SPoRT has published over 120 peer-reviewed articles that describe Research-to-Applications / Applications-to-Research (R2A/A2R) work and pioneered 'applications-based' training techniques that have been adopted nationally and internationally
- Developed and maintained broad dissemination of real-time products to the science and applications community in user friendly formats
- SPoRT has grown to be an end-to-end R2A/A2R program focused on innovating products and capabilities that meet user needs

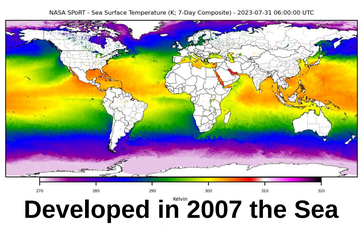


Early use of NASA MODIS by the National Weather Service to monitor snowmelt and issue flood warnings

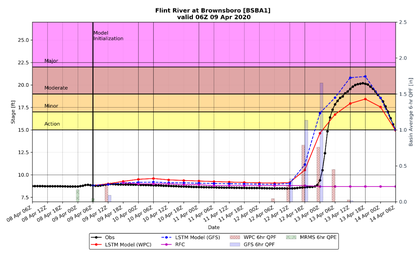
SPoRT STAKEHOLDERS

- SPoRT's 400+ partners & stakeholders span over 80 organizations (*e.g., government agencies, academia, private sector, and other NASA programs*)
- SPoRT products and capabilities are used for decision making, applied research, assimilation into models and private sector services
- Just in the last year, SPoRT gained over 115 new stakeholders though interactive Stakeholder Summit Events

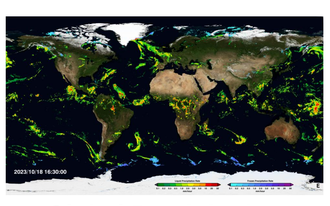
SPoRT PRODUCTS



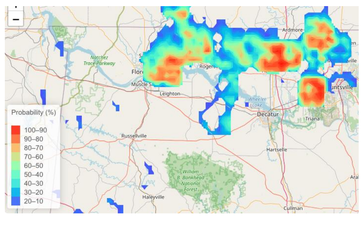
Developed in 2007 the Sea Surface Temperature Composite product addresses a user need for low-latency observations



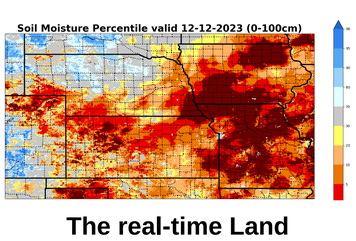
Streamflow-AI addresses a user need for river flooding forecasts beyond 2 days



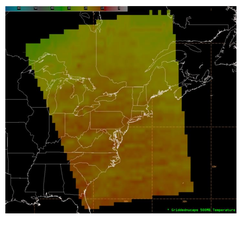
Global Precipitation Measurement precipitation informs heavy precipitation forecasts due to Atmospheric Rivers



Lightning-AI addresses a user need for proactive prediction of lightning threat before it occurs



The real-time Land Information system provides timely information on soil moisture to inform flooding and drought forecasts

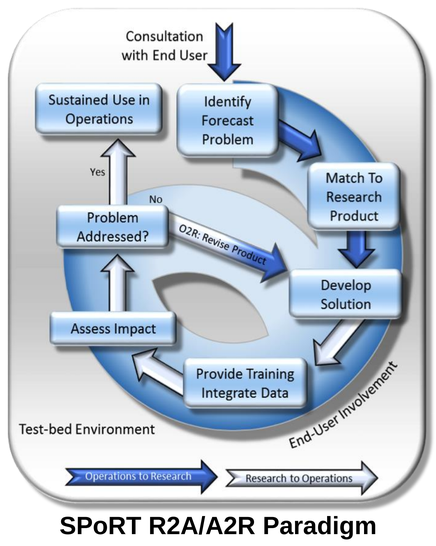


Satellite Sounding products inform severe weather forecasts

***all SPoRT products run in real-time can be found at https://weather.ndc.nasa.gov/sport/**

SPoRT PARADIGM

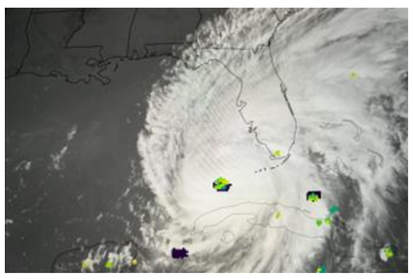
- A proven paradigm for transitioning NASA research data across the "Valley of Death"
- Keys to Success:
  - Collaborative interaction with end users to match challenges, needs, decision making to NASA data
  - Integrate observations into end user decision support tools and formats
  - Applications-focused training
  - End user assessment and applications-to-research feedback



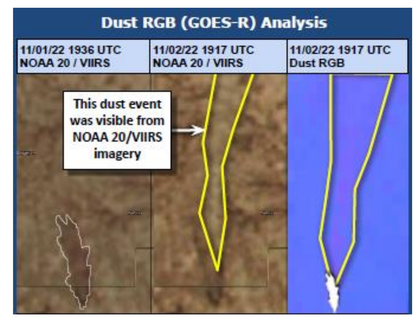
SPoRT R2A/A2R Paradigm

- Is a community agnostic model based on an innovate to user-need approach
- Designing and developing products and capabilities with the user involved in the process leads to sustained use of products, capabilities, and tools

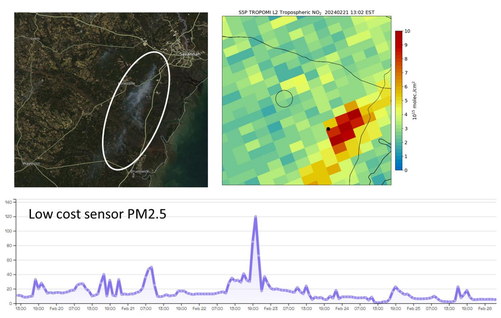
SPoRT RESEARCH



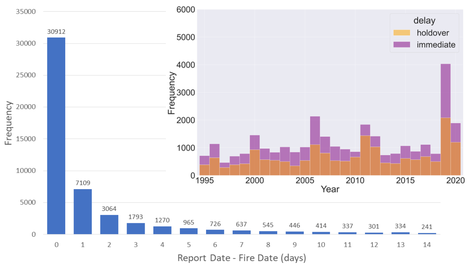
Advancing the understanding of lightning in hurricanes and intensity forecasts



Studying the characteristics that create dust storms and events lofted from burn scars



Using next-generation satellites to monitor prescribed burn and health impacts of smoke



Studying lightning-initiated wildfires from 1995-2000

CONCLUSION

- As NASA Earth Science implements the Earth Science to Action Strategy into the next decade, SPoRT's expertise in R2A/A2R is key to fulfilling the vision
- SPoRT has expertise in bridging communities to develop and transition solutions that have enabled Earth Action over the last 20 years
- Partnerships with science teams, data science, educators, and stakeholders enable sustained use of SPoRT solutions



NASA Earth Science to Action

REFERENCES

Jedlovec, G. Transitioning research satellite data to the operational weather community: The SPoRT Paradigm [Organization Profiles]. *IEEE Geosci. Remote Sens. Mag.* **2013**, *1*, 62–66, doi:10.1109/MGRS.2013.2244704.