Mesonets in the Midwest Region

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NIDIS Regional Workshop Series
Nov 7-10 & Dec 5-8, 2016

KENTUCKY CLIMATE CENTER

Talking Points

- What is a mesonet?
- How mesonets fit into the Midwest DEWS
- Lessons learned from building the Kentucky Mesonet
- Toward an integrated Midwest mesonet

A Scalable Environmental Monitoring Infrastructure

Sensor Package

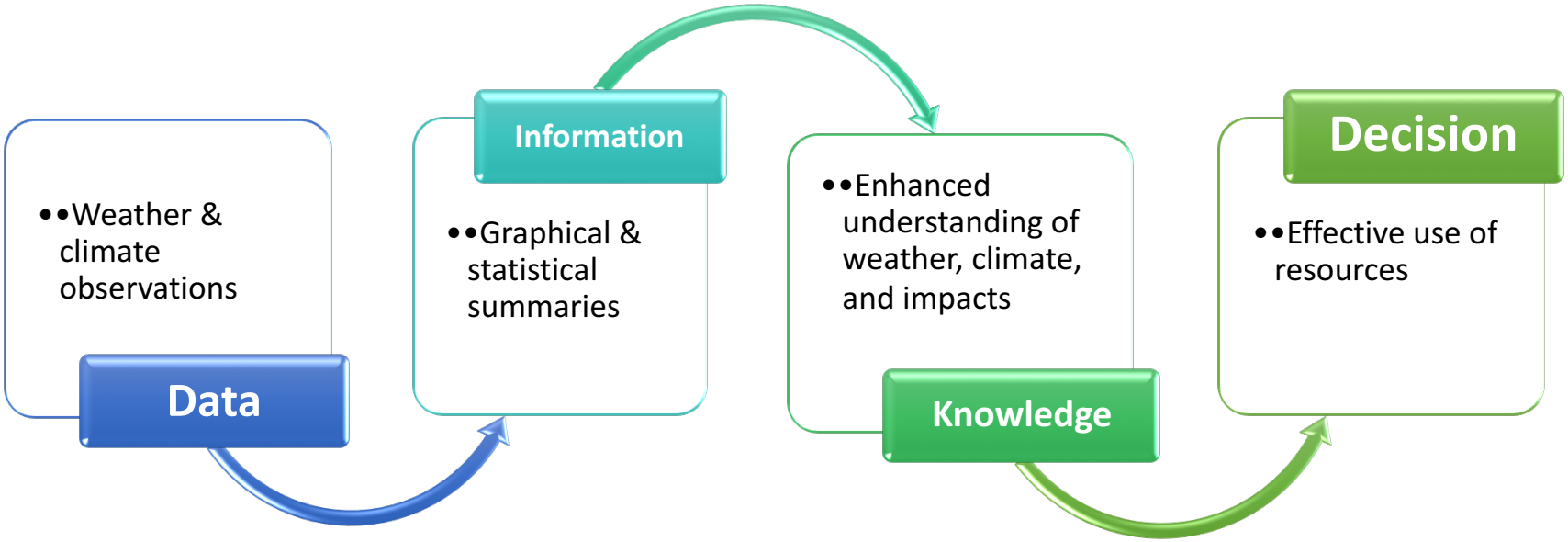
- Air temperature
- Precipitation
- Solar radiation
- Relative humidity
- Wind speed & direction
- Soil moisture & temperature*

* *selected sites*

Midwest DEWS Priorities and Needs Related to Mesonets

- Integration of networks to facilitate delivery of data, tools, and information
- Understanding of hydrologic and climatic processes
  - Improvements to soil moisture networks
  - Surface-groundwater relationships

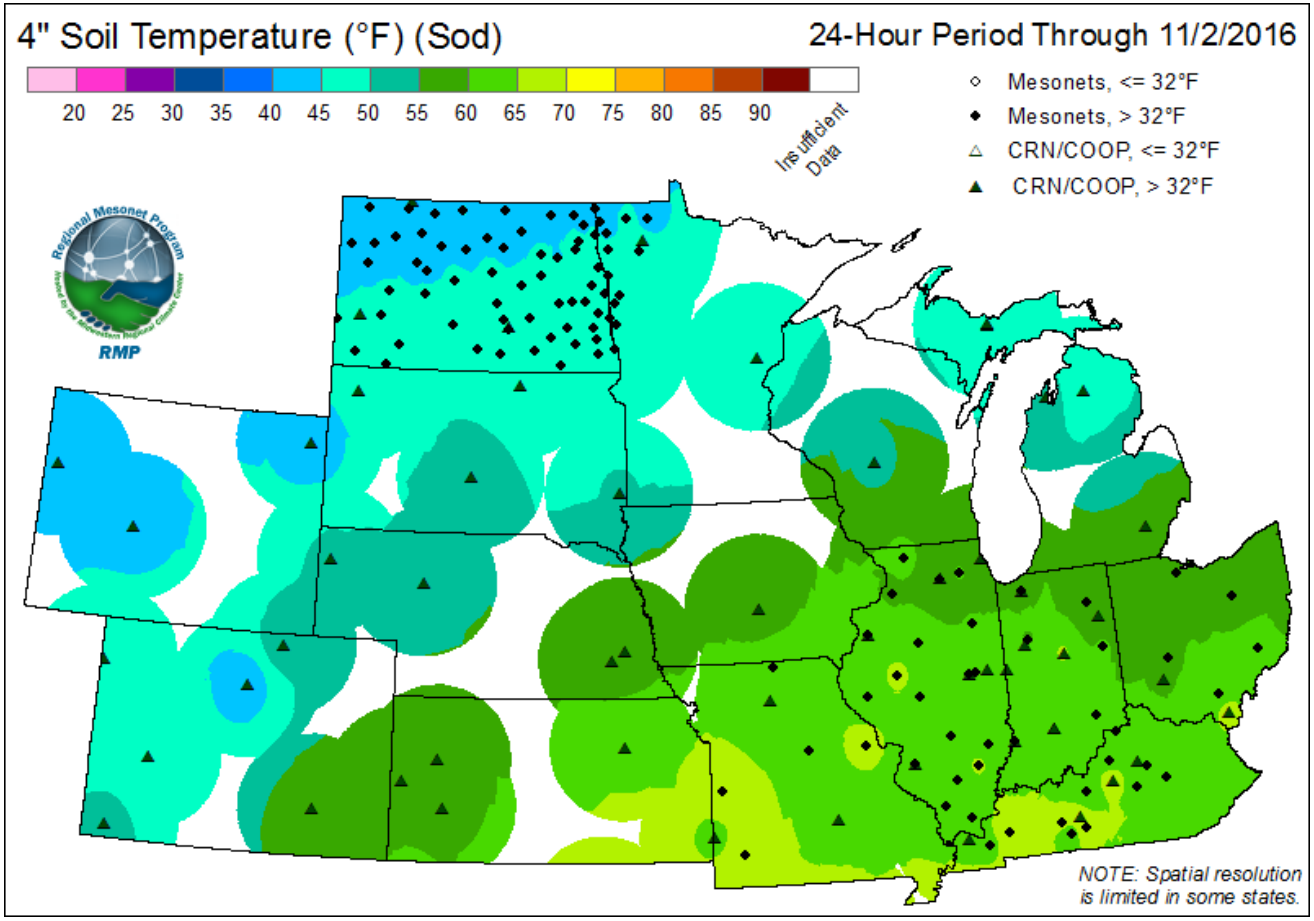
From Data to Decision



Midwest Climate Watch

MRCC
Midwestern Regional Climate Center

Regional Mesonet Program (RMP)



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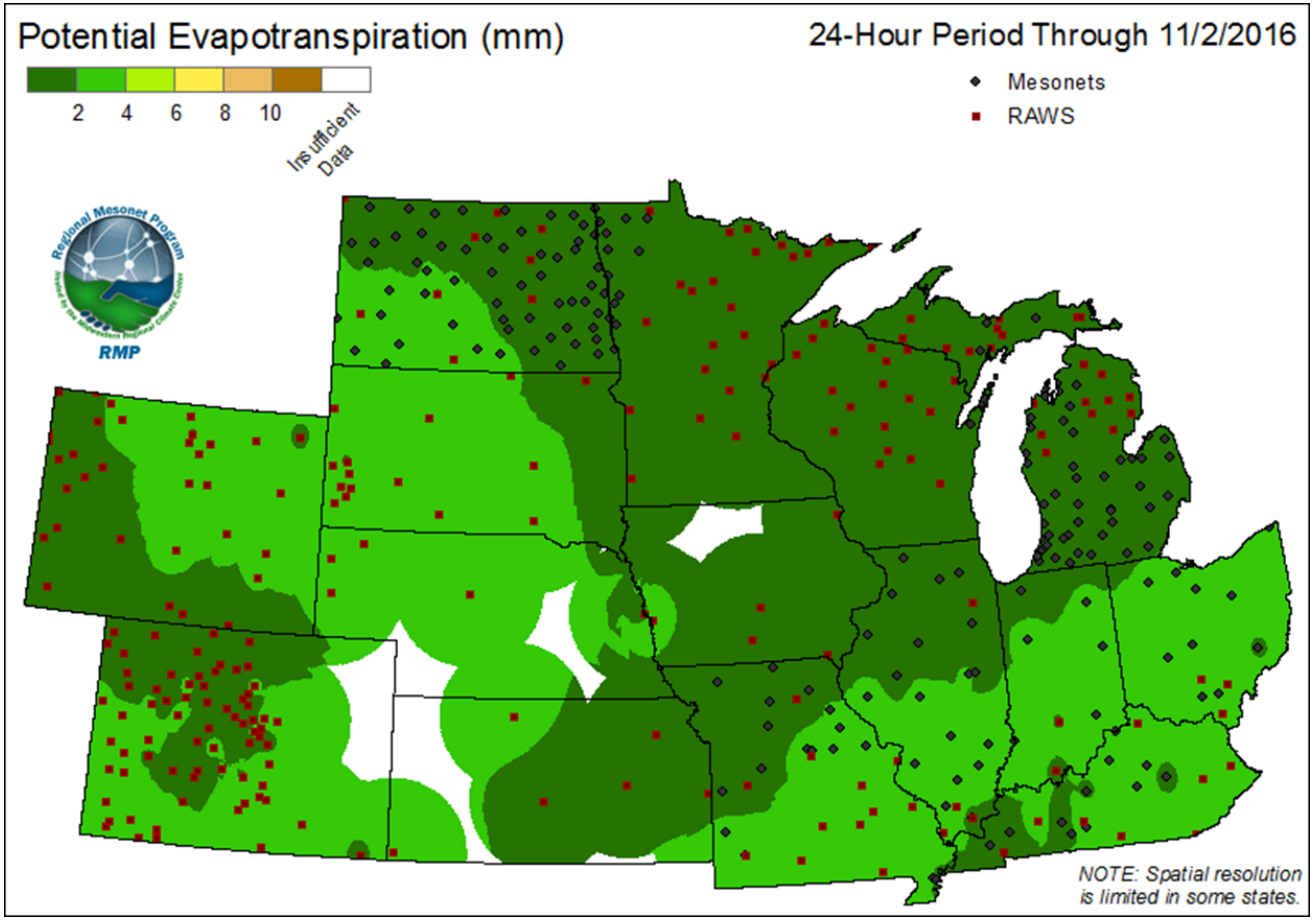


Midwest Climate Watch

MRCC
Midwestern Regional Climate Center

Maps & Images | Highlights & Reports | Special Topics

Partners in the Regional Mesonet Program (RMP)

About | Return

The mesonet groups that are a part of Regional Mesonet Program (RMP) are from multiple states and mesonet groups. For more information on any of the state or national networks, please visit their websites.

Illinois Climate Network

Indiana State Climate Office

IEM Iowa Environmental Mesonet

Kentucky Mesonet at WKU

Michigan State University Enviro-weather

MU Extension AgEBB Missouri Ag Weather

The Ohio State University OARDC

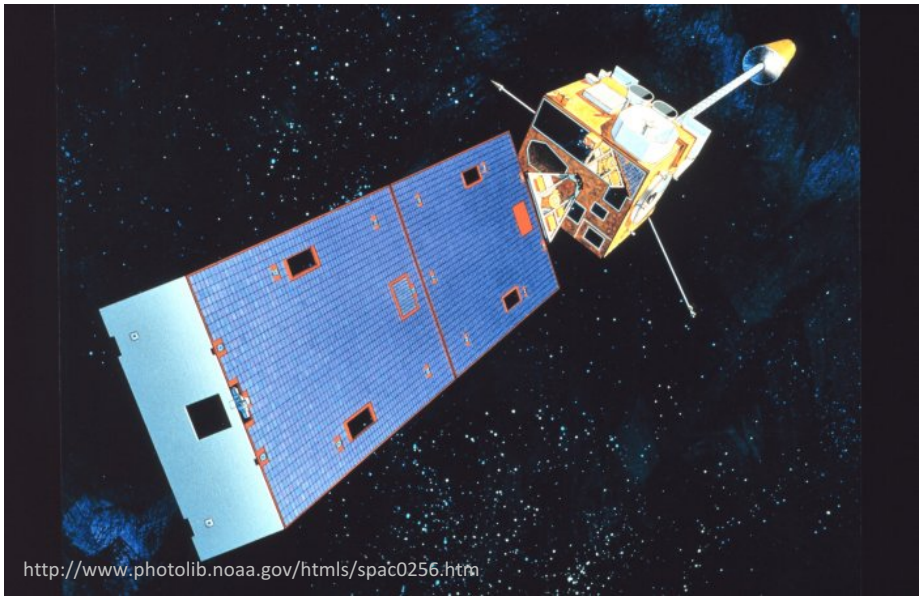
NDAWN Center North Dakota Agricultural Weather Network

NATIONAL NETWORKS: CRN, RAWS

Regional Mesonet Program Partners Forum

A Matter of Perspective

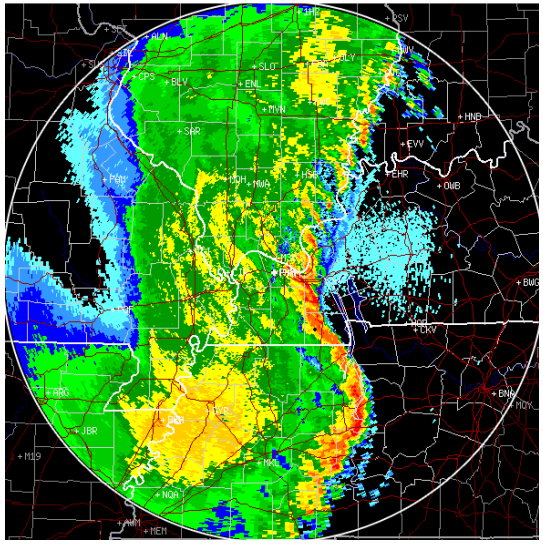
Geostationary Earth Observing Platforms


http://www.photolib.noaa.gov/htmls/spac0256.htm

http://www.ruralimagecoop.org/tag/front-porch-sitting/

Remote sensing provides a bird's-eye view, while people see the world from their front porch.

Complementary Monitoring Systems



Why a mesonet?

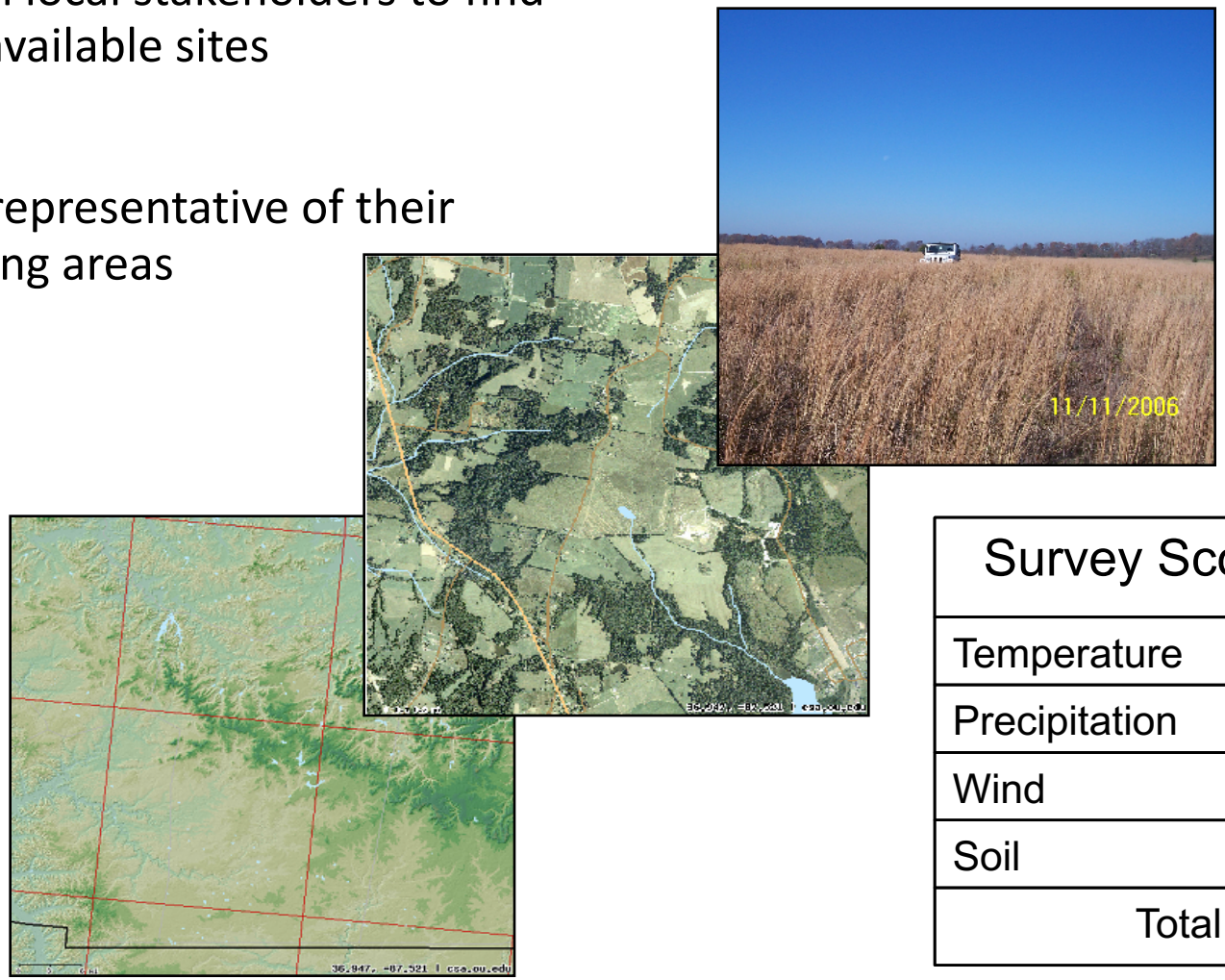
Across the Commonwealth

Kick-off Meetings

It's all about partnerships

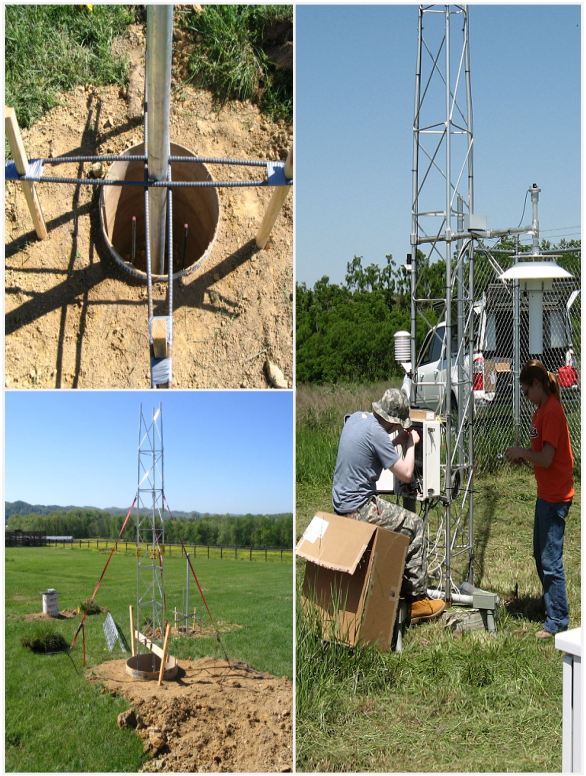
High-Quality Sites for High-Quality Data

- Work with local stakeholders to find the best available sites
- Sites are representative of their surrounding areas



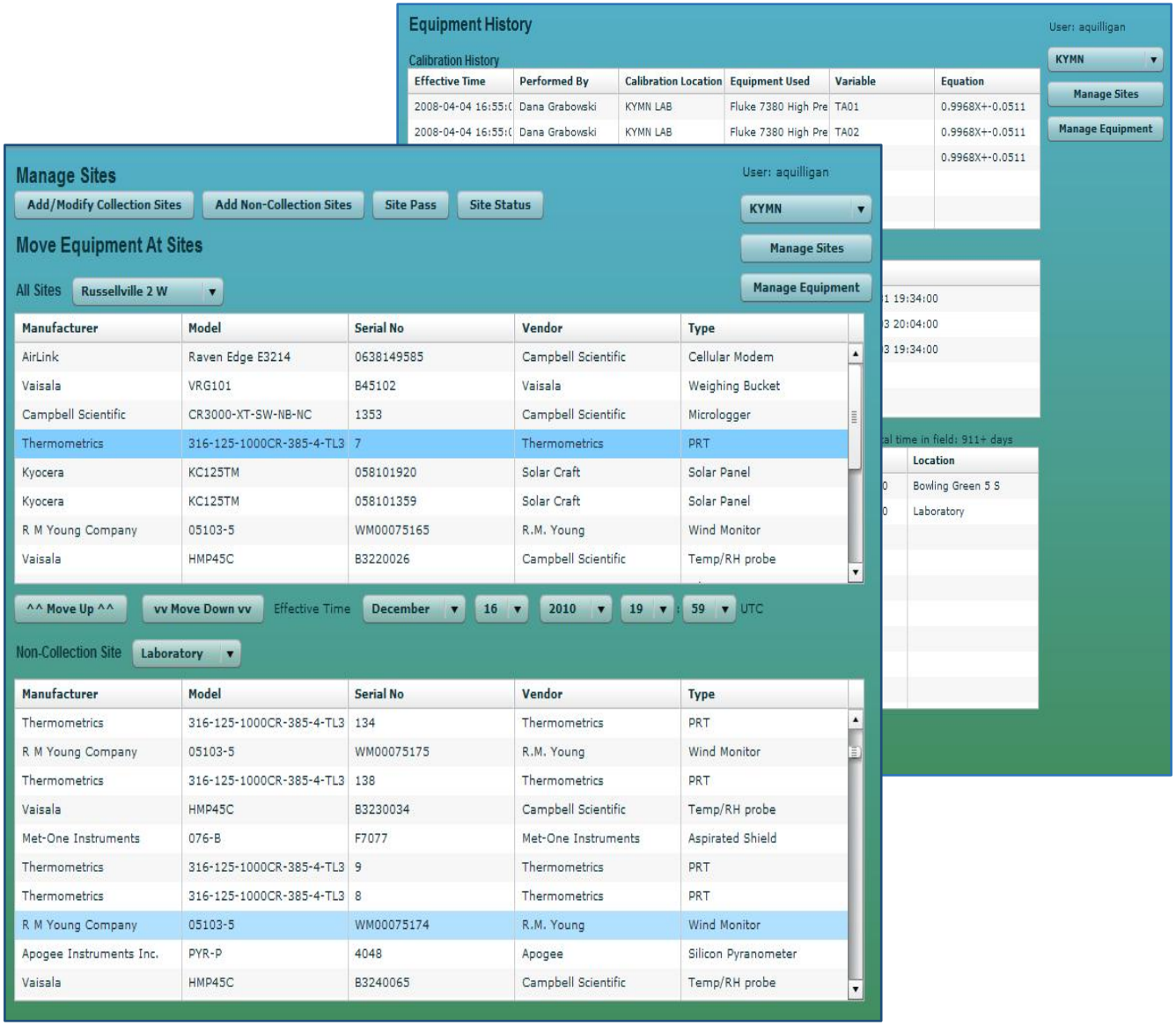
Survey Scores	
Temperature	40
Precipitation	30
Wind	12
Soil	15
Total	97

Station Installation and Maintenance

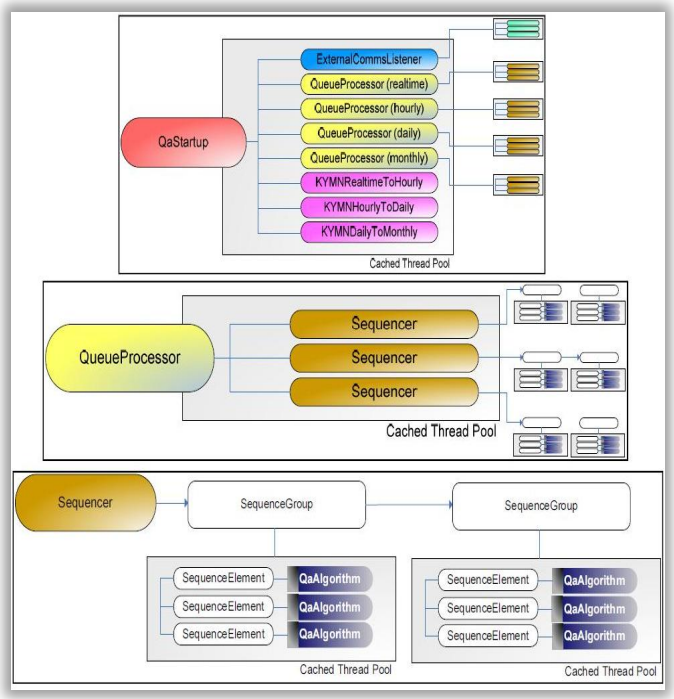


- Install and test meteorological instrumentation before bringing station online
- Complete scheduled spring, summer, and winter site maintenance passes
- Respond to “trouble tickets” when QA processes require unscheduled site maintenance visits

Metadata Database



Quality Assurance Procedures

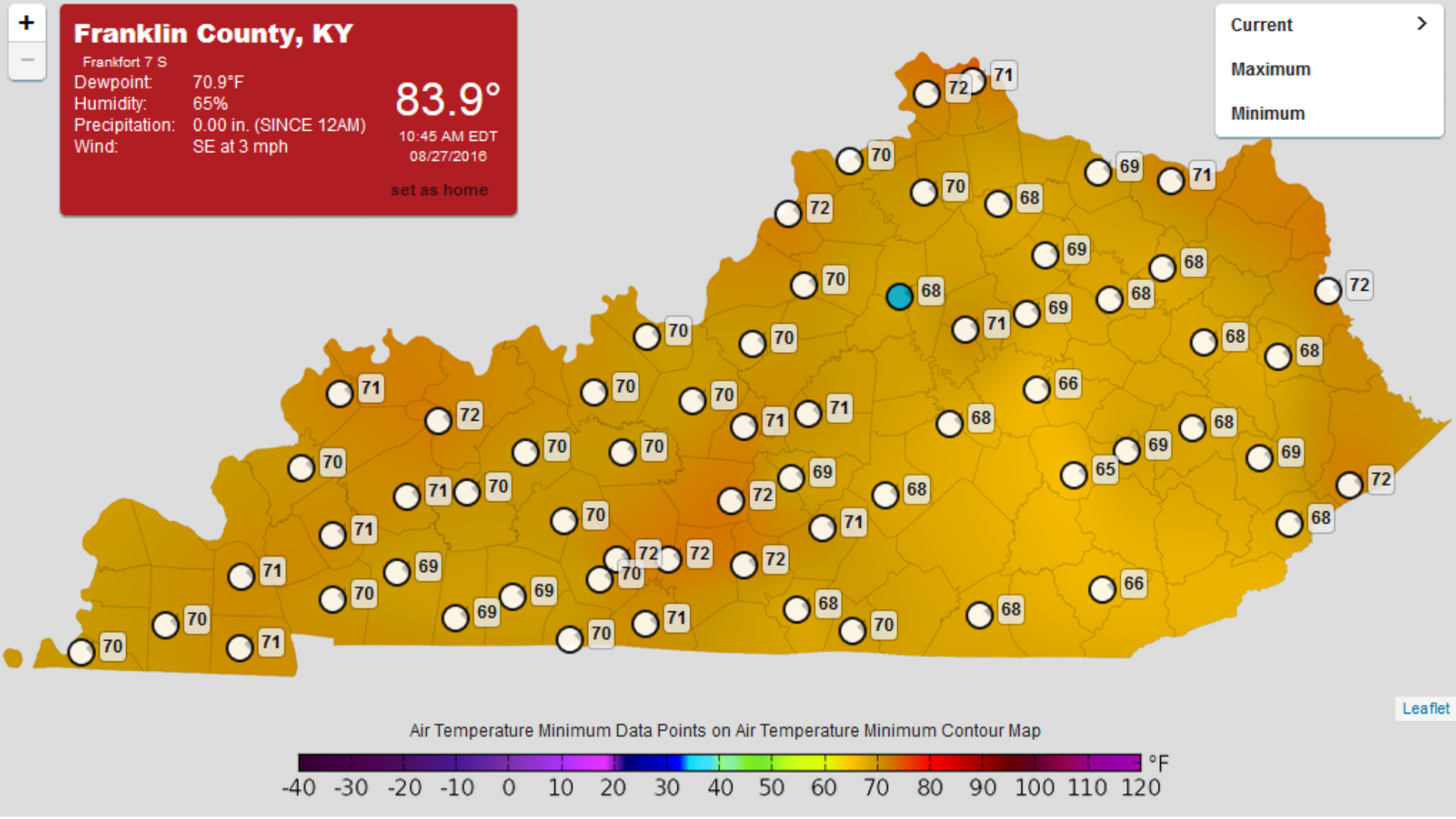


- Automated QA runs on five-minute data as they are collected from remote sites
- Manual QA is implemented on a daily basis to provide expert assessment of system performance

KENTUCKY MESONET | WKU

The Commonwealth's Official Source for Weather and Climate Data

Home | About | Live Data | Summary Data | Event Tracking | Outreach



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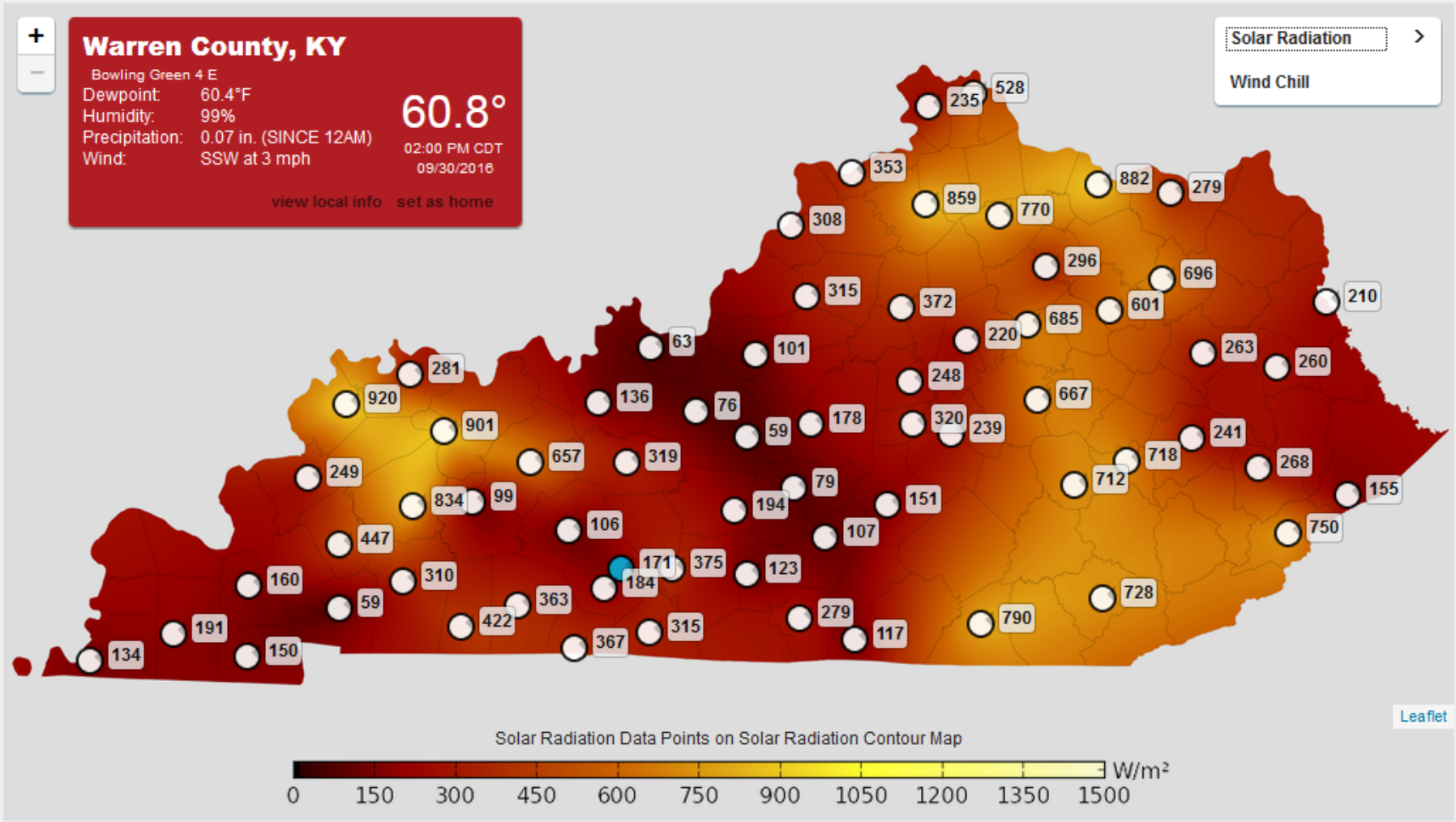

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SITE

Franklin County (LSML)

TEMPERATURE GRAPHS

WIND GRAPHS

MOISTURE GRAPHS

PRECIPITATION GRAPHS

✔ PRECIPITATION AND ACCUMULATED PRECIPITATION

ACCUMULATED PRECIPITATION AND TEMPERATURE

PRECIPITATION AND TEMPERATURE

PRECIPITATION, ACCUMULATED PRECIPITATION, AND TEMPERATURE

SOLAR RADIATION GRAPHS

TIME INTERVAL

6 HOURS

12 HOURS

24 HOURS

48 HOURS

72 HOURS

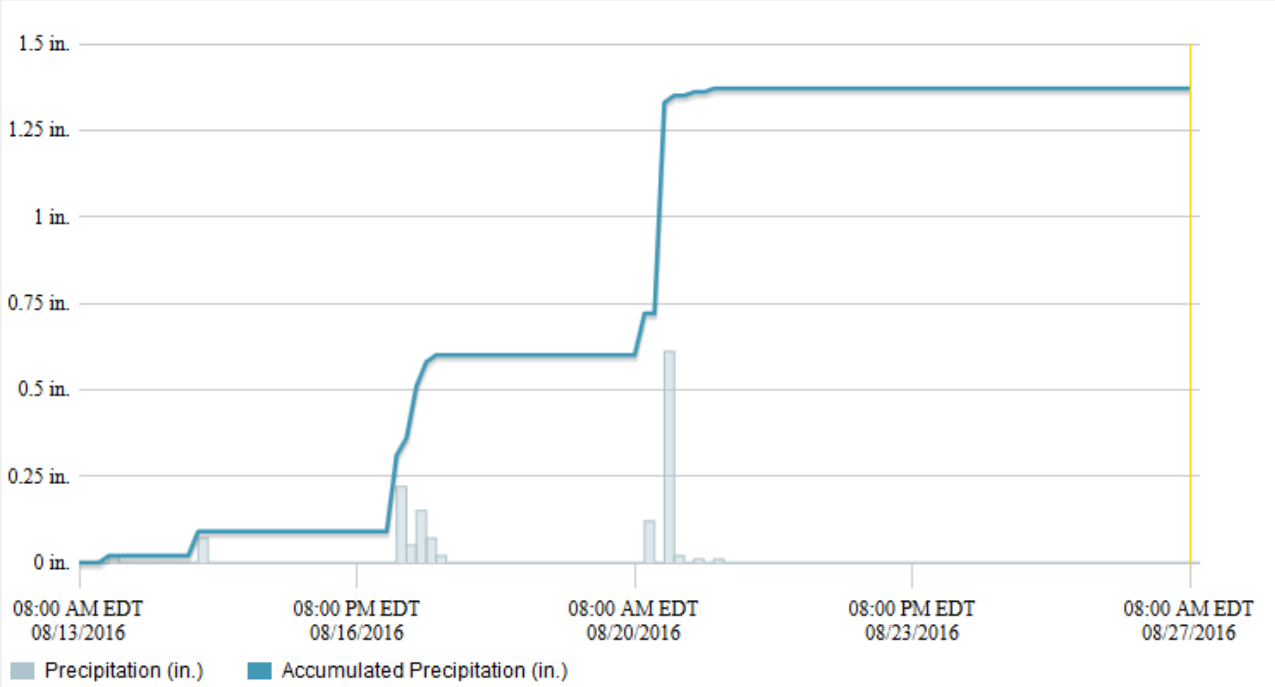
5 DAYS

7 DAYS

✔ 2 WEEKS

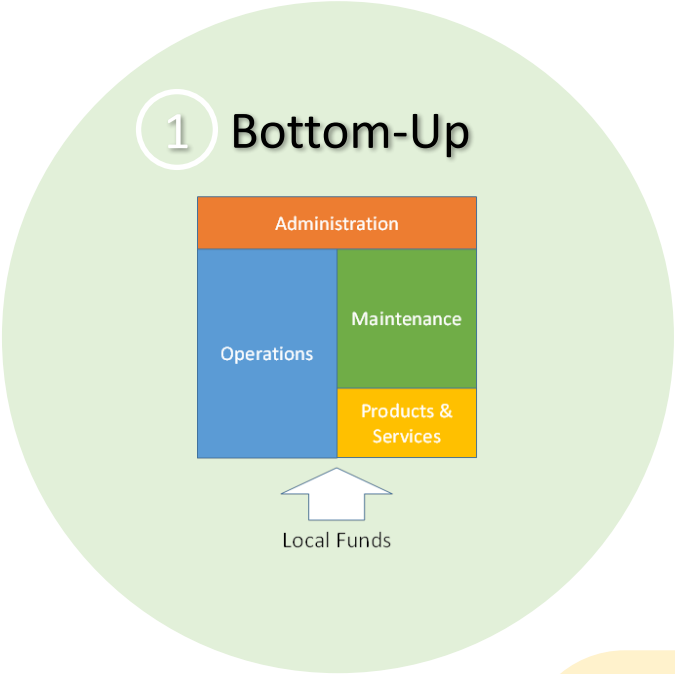
1 MONTH

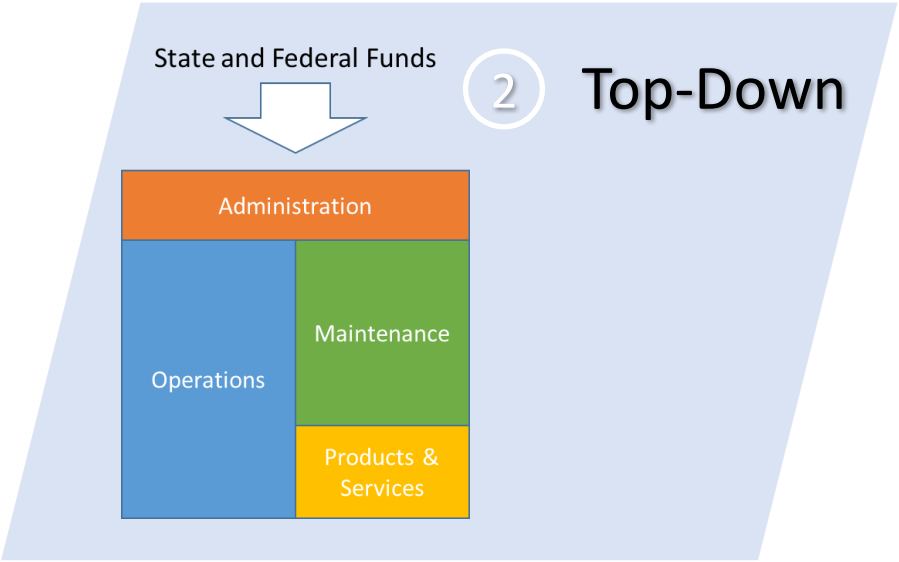
LSML Precipitation and Accumulated Precipitation (14 Day)



Station	Franklin County, KY
Time	08/27/2016, 08:00 AM EDT
Air Temperature	69.6 ° F
Relative Humidity	100 %
Precipitation	0.00 in.
Wind Speed	0 mph
Wind Direction	57 ° (NE)
Wind Speed Max Gust	1 mph
Solar Radiation	97 W/m^2
Dewpoint	69.6 ° F

Alternative Funding Strategies



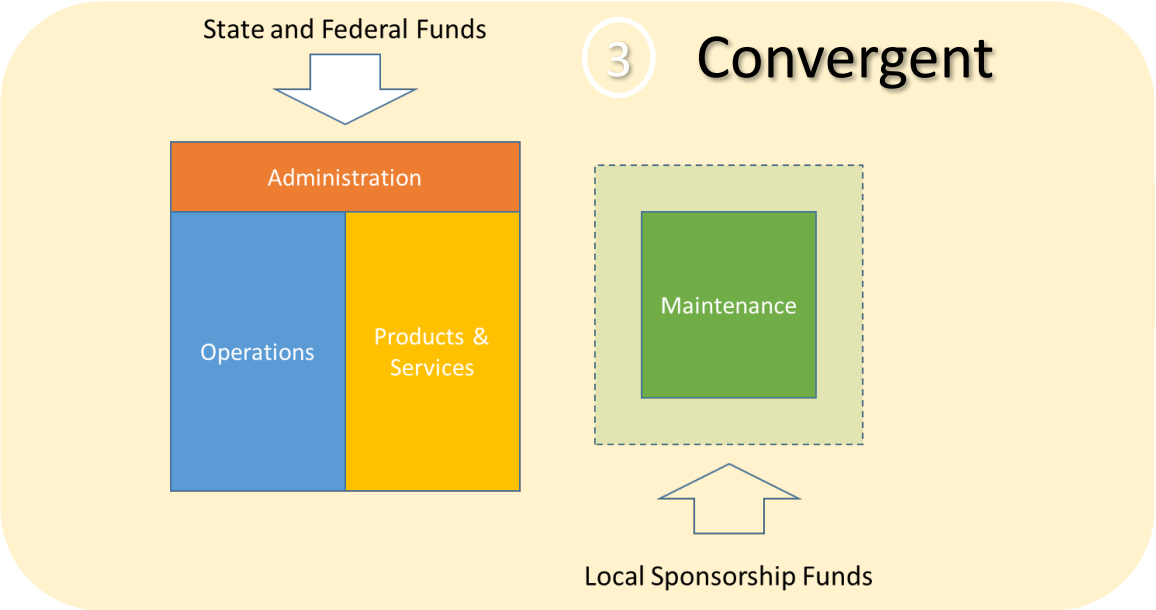


In search of …

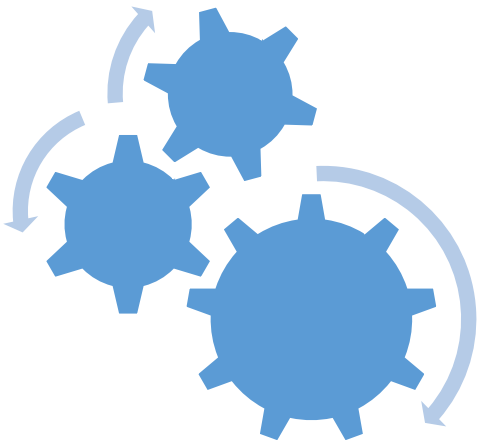
Agility

&

Resilience



Strategic Initiatives



- Tiered public partnerships

  Federal, State, Local

- Advisory board

  Individuals to guide and champion efforts supporting public safety and economic development

- Industry partnerships

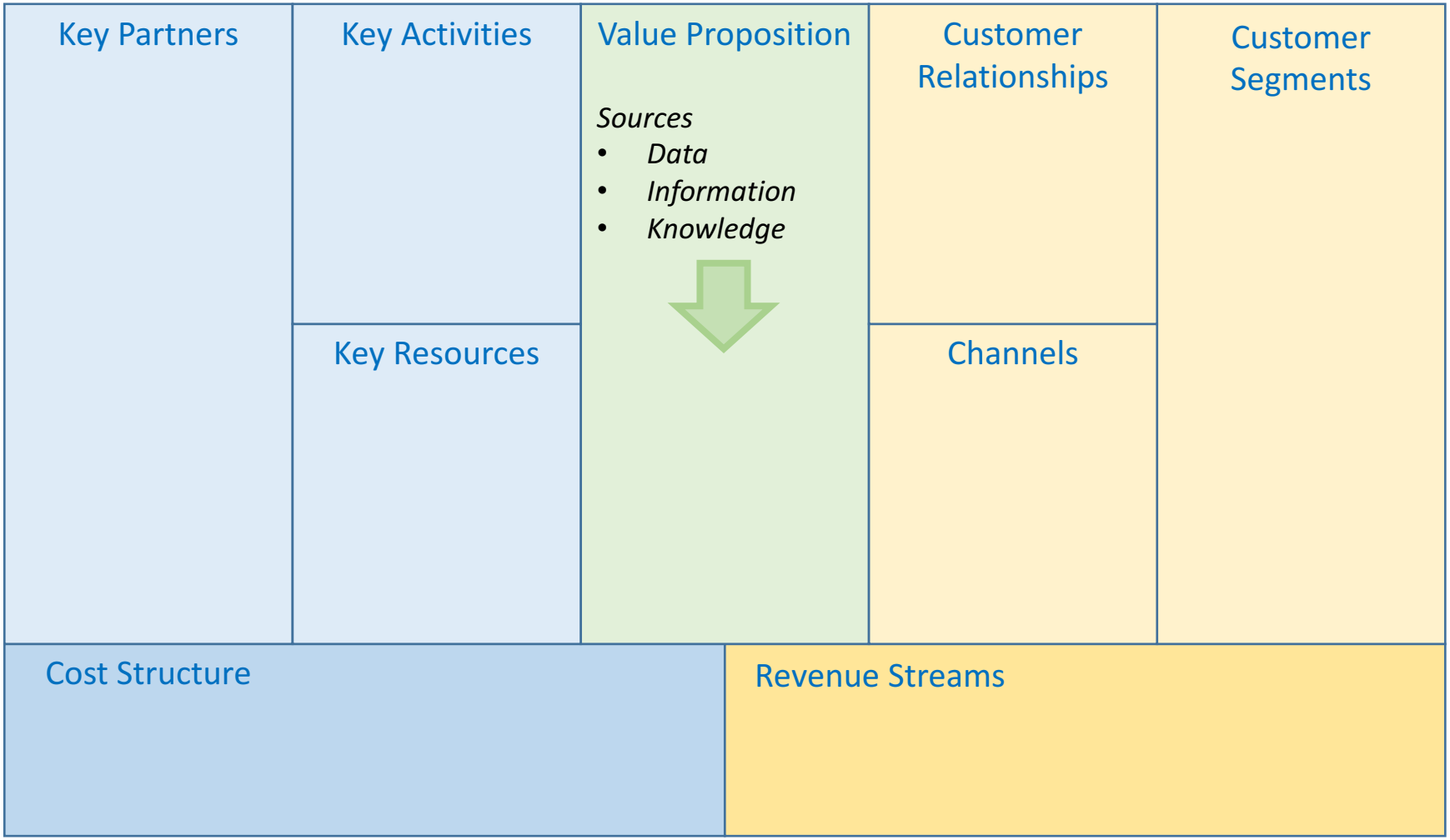
  Engage and link expertise from industry and academia for research and development of weather and climate services

Creating Value

Places in Spaces

- Awareness
- Accessibility
- Attraction

A Business Model Canvas for Mesonet Operators



Based on Osterwalder, Alexander, and Pigneur, Yves. *Business Model Generation*, New York: John Wiley & Sons, Inc. 2010.

Register now!

You're Invited!

2017 Regional Mesonet Program Workshop

When: March 21-23, 2017
Where: Hyatt Place, Champaign, IL

Approximately 40 mesonet managers and climate data service providers will explore ways to collaborate with other mesonets to share expriences and develop proposed methods that will provide sustained, organized, and reliable high-resolution observational data for the long-term monitoring and assessment of surface climate conditions.

Target Participants

- Mesonet managers, operators, and directors
- Climate and data network experts concerned about cross-network issues, standards, and promotion

Goals of the Workshop

- Identify observational network protocols that could be affordably managed and implemented
- Leverage shared experiences from other sustained, long-term local and regional networks to identify future actions and priorities
- Identify product deliverables that would elevate the value of local and regional mesonets when integrated as a collaborative
- Leverage the needs of the Drought Early Warning System (DEWS) partners and stakeholders to promote the capabiities and value of mesonets