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1. Introduction

The unglaciated portion of the Upper Mississippi River Valley region experiences a higher rate of flash flooding due to steep terrain, increasing the vulnerability of communities near waterways. Recent extreme rainfall events, coupled with wet soil conditions, have led to catastrophic flash flooding. Warning forecasters at the National Weather Service La Crosse Forecast Office applied Flooded Locations and Simulated Hydrographs (FLASH) data and situational awareness tools to aid in assessing the need for a Flash Flood Emergency.

Overnight heavy rainfall events are typically most problematic to operational forecasting, when incoming reports are less frequent and darkness provides limited visibility to determine the severity of flooding. This necessitates the need for having multiple ways to receive incoming information from emergency responders, emergency management, and storm spotters.

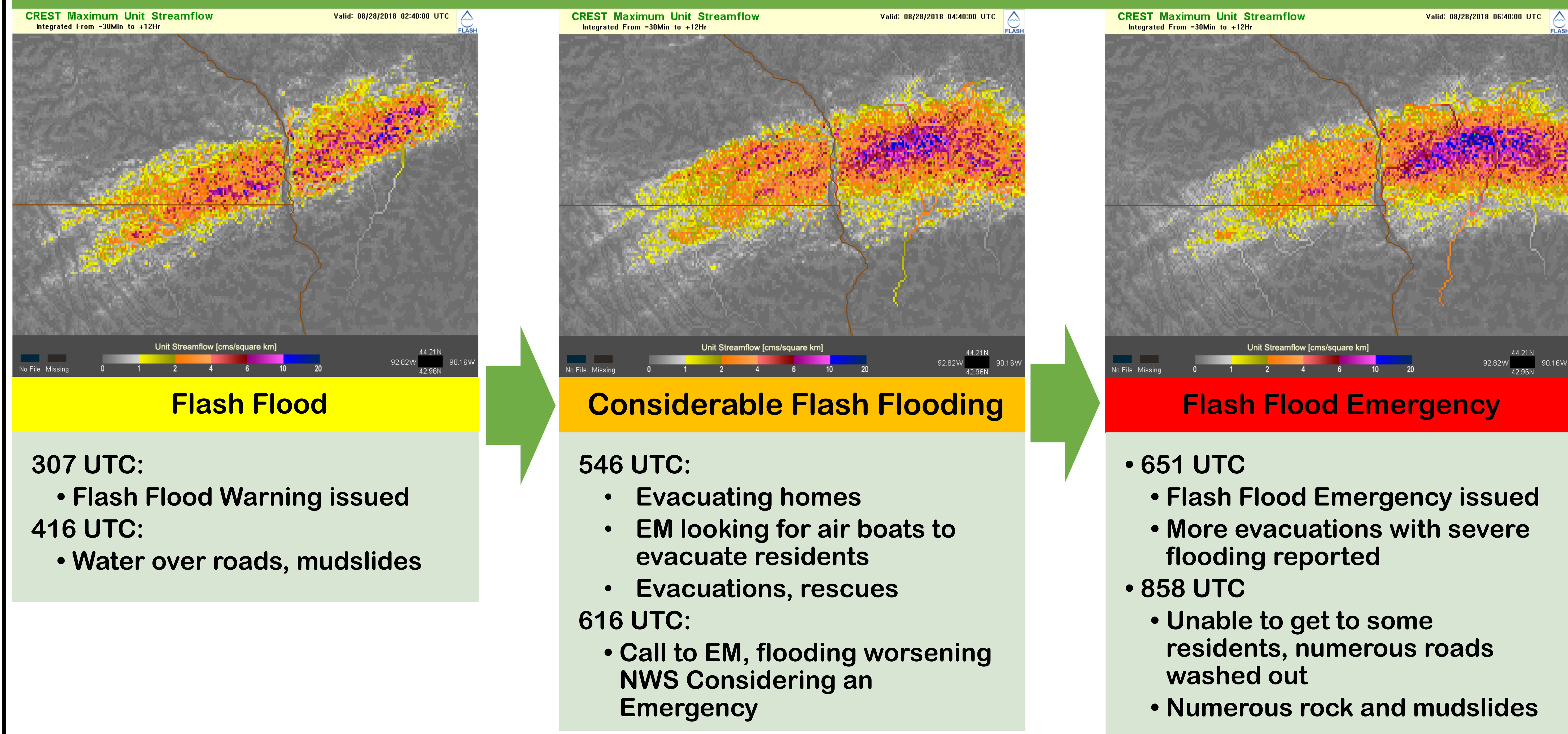
This research reviews recent FLASH data performance for high-impact flood events and methods used to maintain situational awareness (SA) to gauge the flooding threat and magnitude.

2. Data

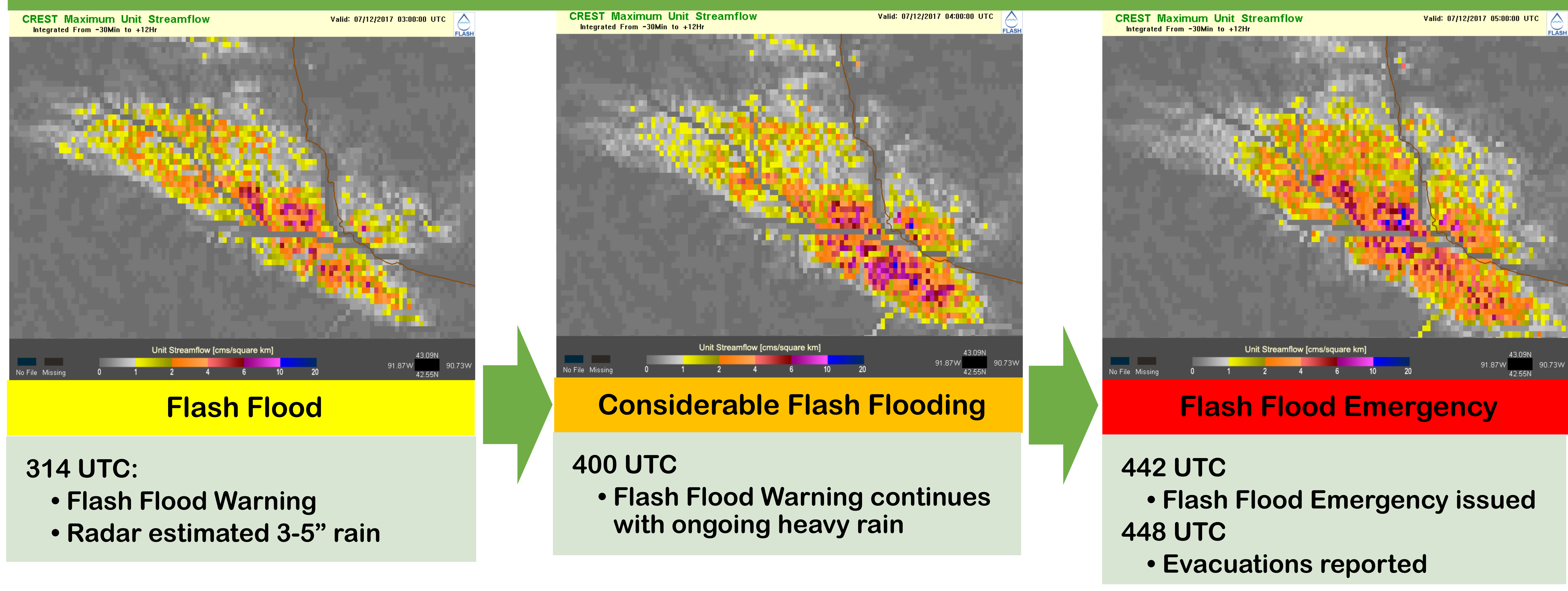
- FLASH CREST (Maximum Unit Stream Flow) Shown to have skill in identifying flood impact level. *MRMS radar only rainfall and must be representative (i.e. hail versus rain).*
- NWS La Crosse communication records with local law enforcement, emergency management, storm spotters, highway departments, and other partners.

3. Catastrophic Flooding Events

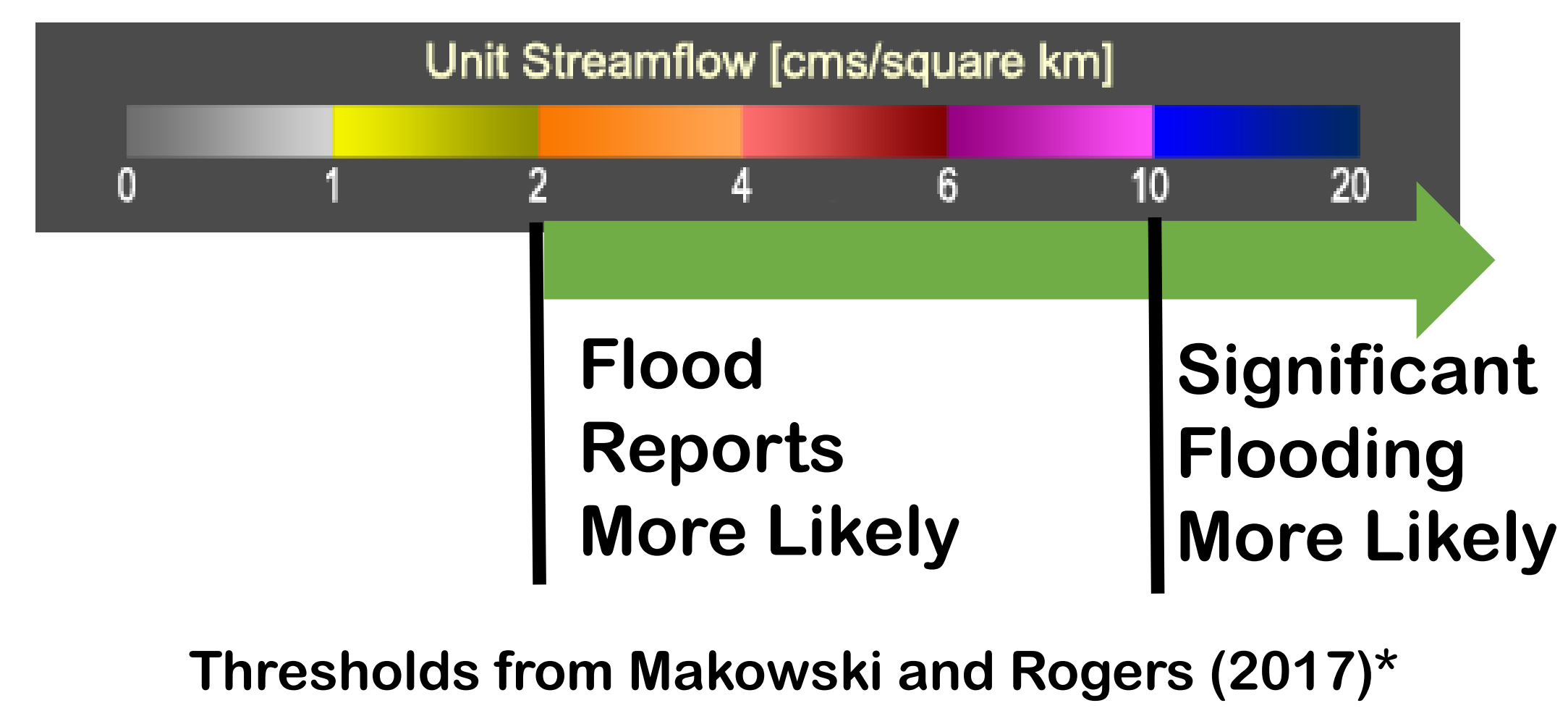
August 27-28, 2018



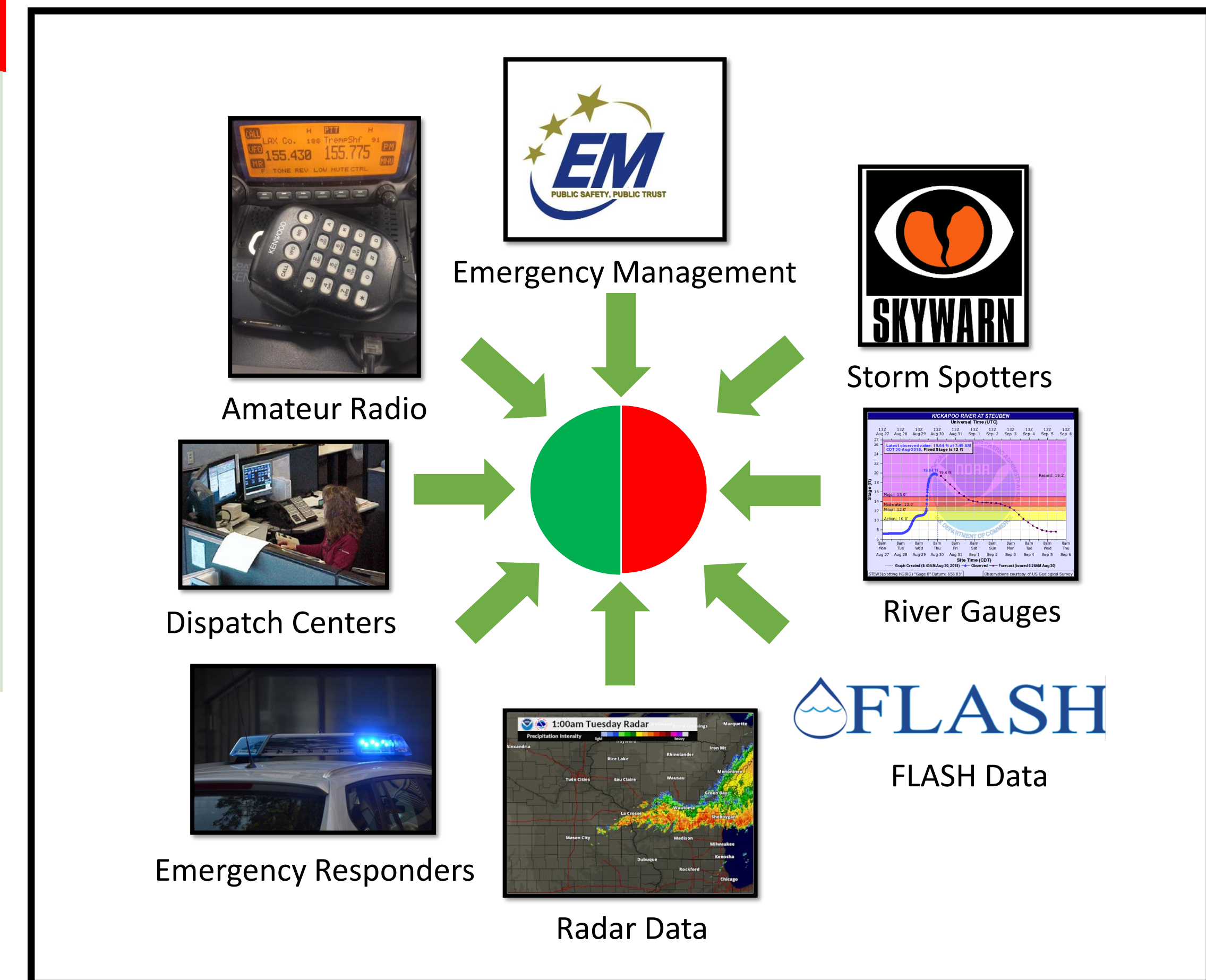
July 11-12, 2017



4. Guidance Applied



5. Situational Awareness



6. Considerations

- CREST Maximum Unit Streamflow is just one tool. Use with other data to determine the need for possible Flash Flood Emergencies.
- May provide guidance for downstream impacts and warnings.
- Maintain high situational awareness by using several sources and remain alert for increasing impacts.

Want to know more?

Please see me for additional information or questions. I would be happy to speak with you. I am also available via e-mail:
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*Makowsky J., Rogers P., 2017, NOAA/NWS La Crosse, WI: "A Review of FLASH Performance for three Flash Flood events in July 2017". 22nd Annual Severe Storms & Doppler Radar Conference. Ankeny, Iowa.