

2<sup>nd</sup> Edition

# Monitoring the Non-Thermal Universe

HAP Workshop:  
Towards a global multi-wavelength network

## Networking

From ...

- ... theory to TeV
- ... radio to relativity
- ... polarization to periodicity

Synergy of energy and time lapse without gaps  
Maximizing physics insights from multi-frequency monitoring

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<http://indico.scc.kit.edu/indico/e/HAP-Monitoring-Dec2016>

September 17-21, 2018

at Cochem, Germany

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# Automatic Alerts & Follow-Up

AGN Flares

GRBs

FRBs

XRBs

Neutrino

TDEs

CR

Novae

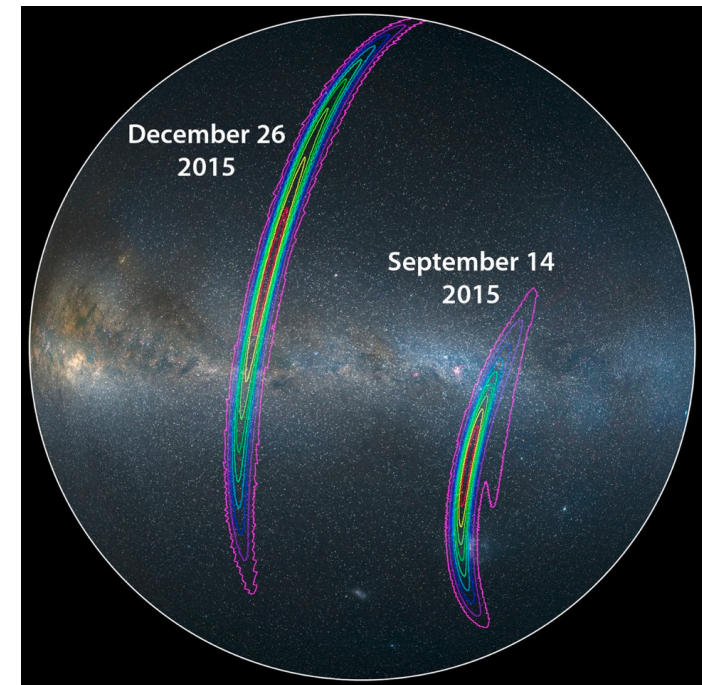
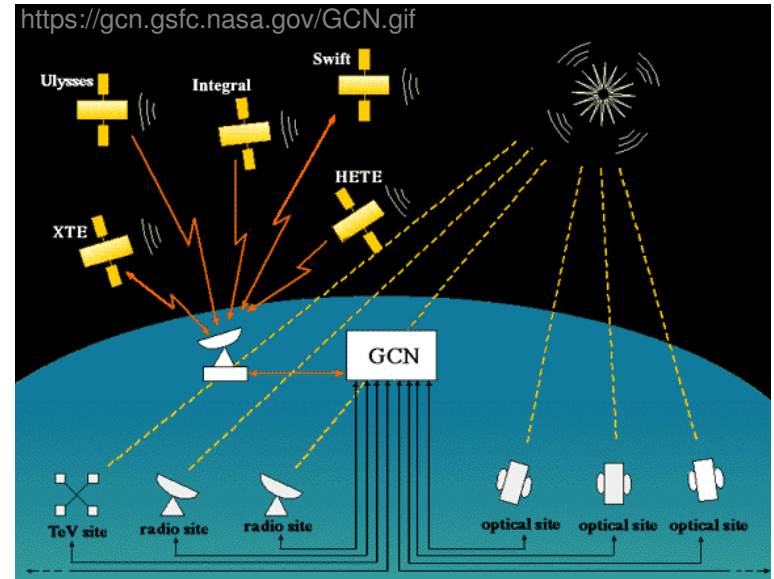
AMON  
(multi-messenger)

Gravitational  
Waves



# How realistic are automatic prompt follow-ups?

- Latencies
  - of alerts
  - until telescope is observing
    - Hardware limitations, uptime, visibility
    - Priorities of observations
      - Automatic follow-up for which alerts?
      - How to categorize/prioritize alerts/observations?
      - How to handle large number of alerts?
      - Can we put everything into algorithms or is human interaction needed?
- Uncertainty of location
  - most likely position? associations with known sources? tiling? sub-arrays?



# Real Time Alerts and Follow-Up

- Real Time Alerts
  - Latencies?
    - Real time analysis
    - On-site analysis
    - Procedure of sending alert
      - VOEvent
      - GCN
      - Email
  - What type of alerts can we expect from CTA?
- Feedback on follow-ups
  - Observation done?
  - Results
- Other comments/questions
  - updates of alerts?
  - self-triggering? procedure?
  - burst/flare advocates
    - what exactly should they do?
    - are they needed?
- Generic system for alert/trigger treatment
  - LOFAR software, VOEvent broker, ...
  - starting point for generic system?
  - do we want this?
  - which parts can be used for a generic system?
  - organization needed to do this multi-facility proposal handling?