IMERG-RT Early and Integrated Microwave Imager (IMWI) Surface Flux Product:

View of Hurricanes Irma, Jose, and Katia, and relevance to CYGNSS

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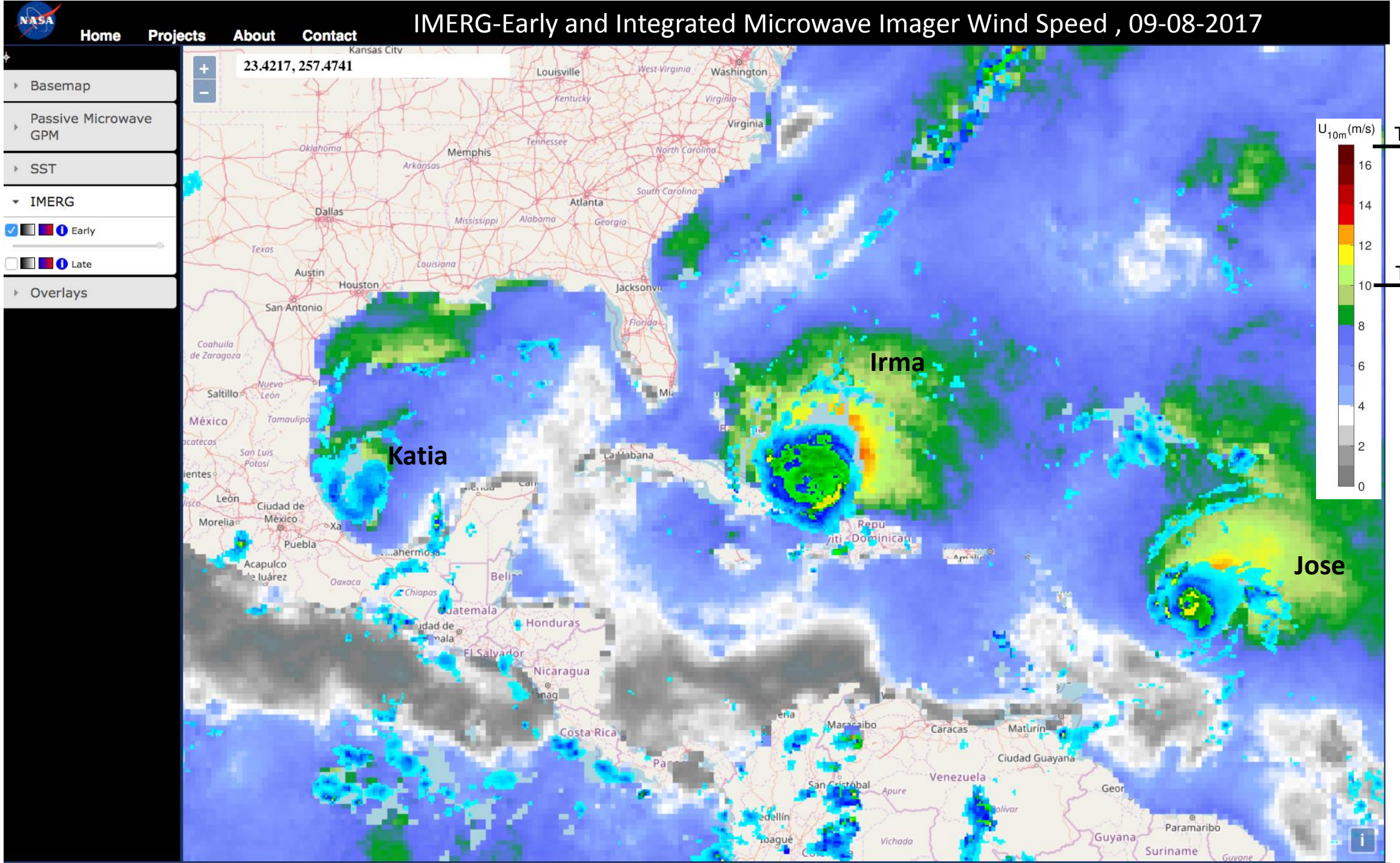
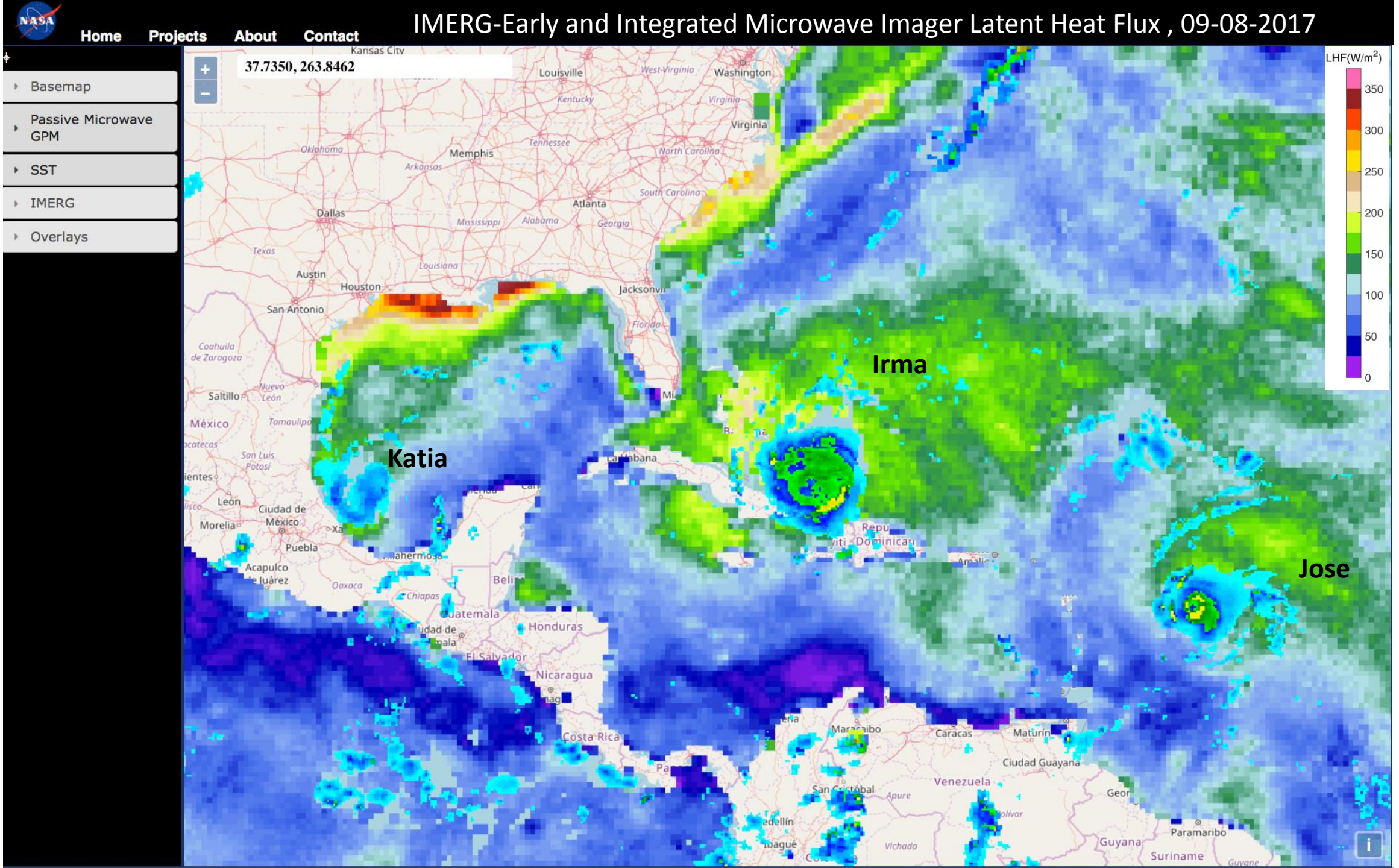
Overview

- Real-time turbulent latent and sensible heat flux products being produced using NASA GPM L1C Microwave Brightness Temperatures (IMERG)
- Part of South Korea ICE-POP campaign supporting 2018 Winter Olympics
- Inputs: GMI, AMSR-2 from GCOM-W1, and SSMIS from F16 and F18
- Retrievals of near-surface wind speeds, as well as temperature (T_a) and humidity (Q_a)
- Limitations in rainfall

IMERG-Early and Integrated Microwave Imager Wind Speed , 09-08-2017

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IMERG-Early and Integrated Microwave Imager Latent Heat Flux , 09-08-2017
Basemap
Passive Microwave GPM
SST
IMERG
Overlays
37.7350, 263.8462
LHF(W/m2)
350
300
250
200
150
100
50
0
Irma
Katia
Jose
Kansas City
Louisville
Washington
Virginia
Memphis
Atlanta
Dallas
Houston
Austin
San Antonio
Jacksonville
Miami
Saltillo
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Suriname

Relevance to CYGNSS

- JPL/UMich producing CYGNSS L2 wind-based flux products; MSFC assisting
- CYGNSS L2 winds can be used to fill in wind speed missing data – CYGNSS not real-time, however
- T_a/Q_a in rainfall? Ideas include using L1C, MERRA-2, and machine-learning-based interpolation to fill in missing data; regime-based classification
- Lessons learned can be applied to CYGNSS flux products