

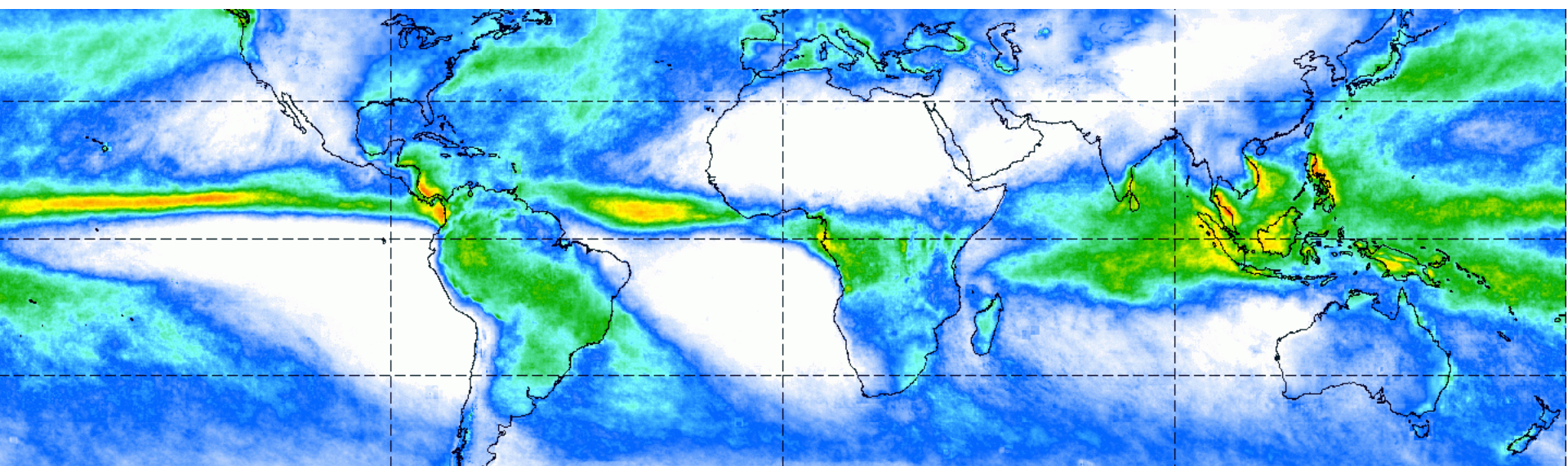
# Tropical Rainfall Measuring Mission

## TRMM Status 2013

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NOVEMBER Average Rainfall mm/dd (3B43) 1998 to 2010





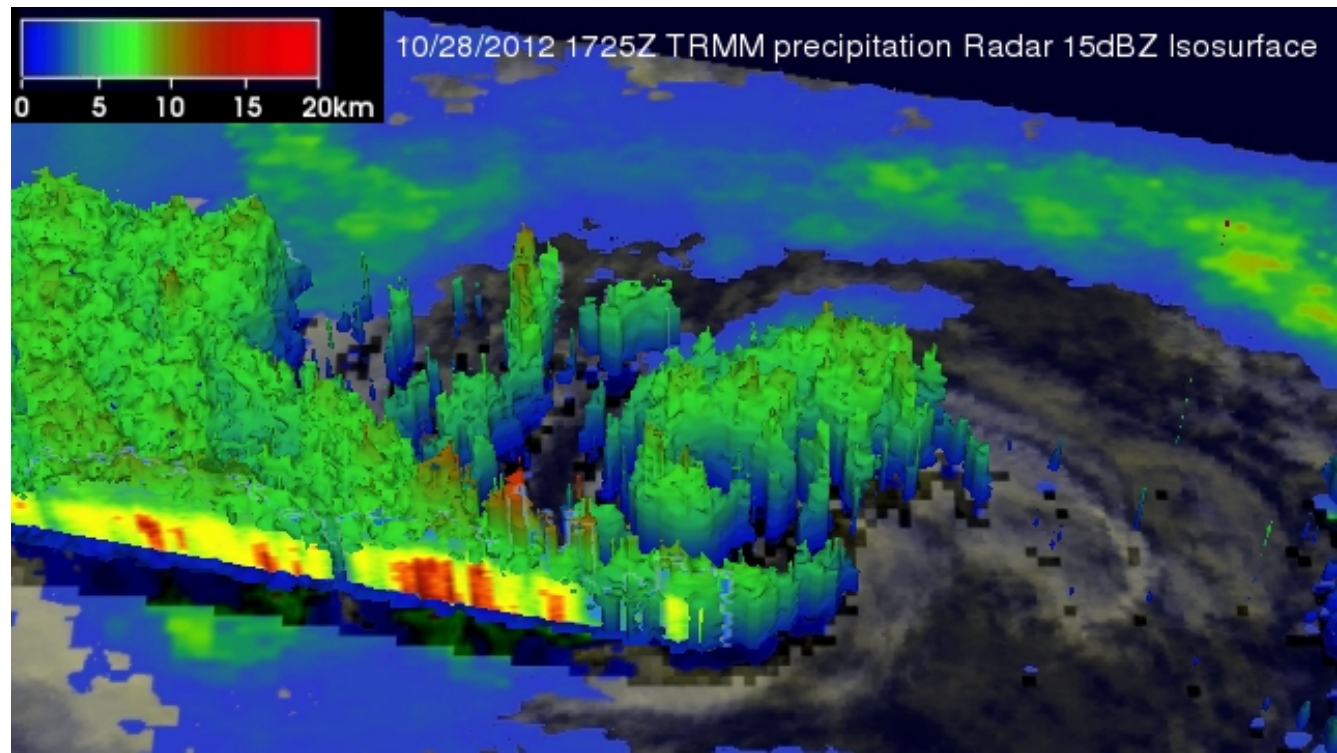
# TRMM Payload

Joint NASA/JAXA mission launched in Nov. 1997

## Instrument Payload:

- TRMM Microwave Imager (TMI)— 10, 19, 37, 86 GHz, conical scanning
- Precipitation Radar (PR) [Japan]— 14 GHz, cross-track scanning
- Lightning Imaging Sensor (LIS)— Staring optical array [MSFC]
- Visible IR Scanner (VIRS)— 5-channel, cross-track scanning
- Clouds and Earth's Radiant Energy System (CERES)

*Hurricane Sandy  
on Oct. 28, two  
days prior to  
landfall*



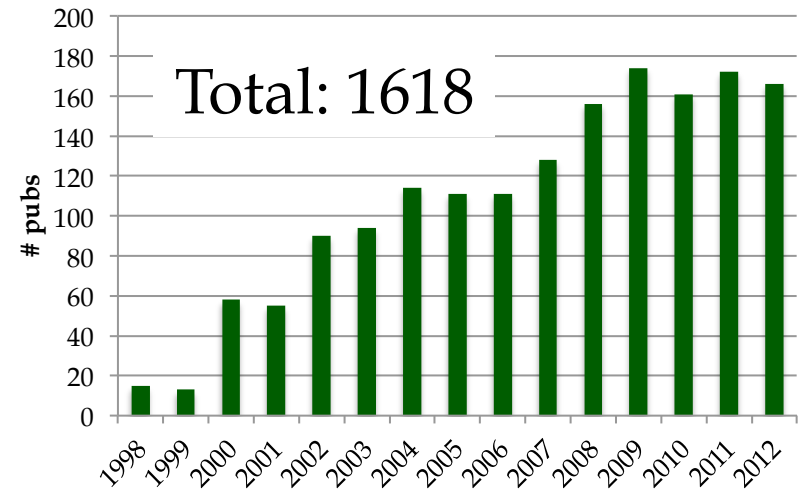


# TRMM Accomplishments

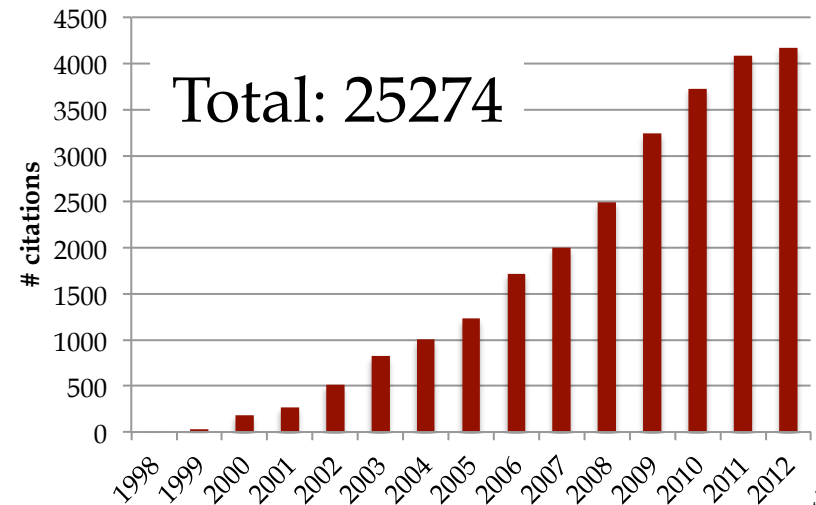
- *Space standard* for measuring precipitation
- Improved *climatologies* of
  - tropical rainfall and variations
  - Latent heating structure
  - Diurnal signals
- Improved *climate and weather models*
- *Impact of humans* on precipitation
- *Hurricane/typhoon* structure/evolution
- *Multi-satellite (~3-hr) rainfall analyses* using TRMM+other satellites
- *Flood and agricultural* applications
- *Operational use* of data by weather agencies.

## Web of Science Search Results

### TRMM Publications



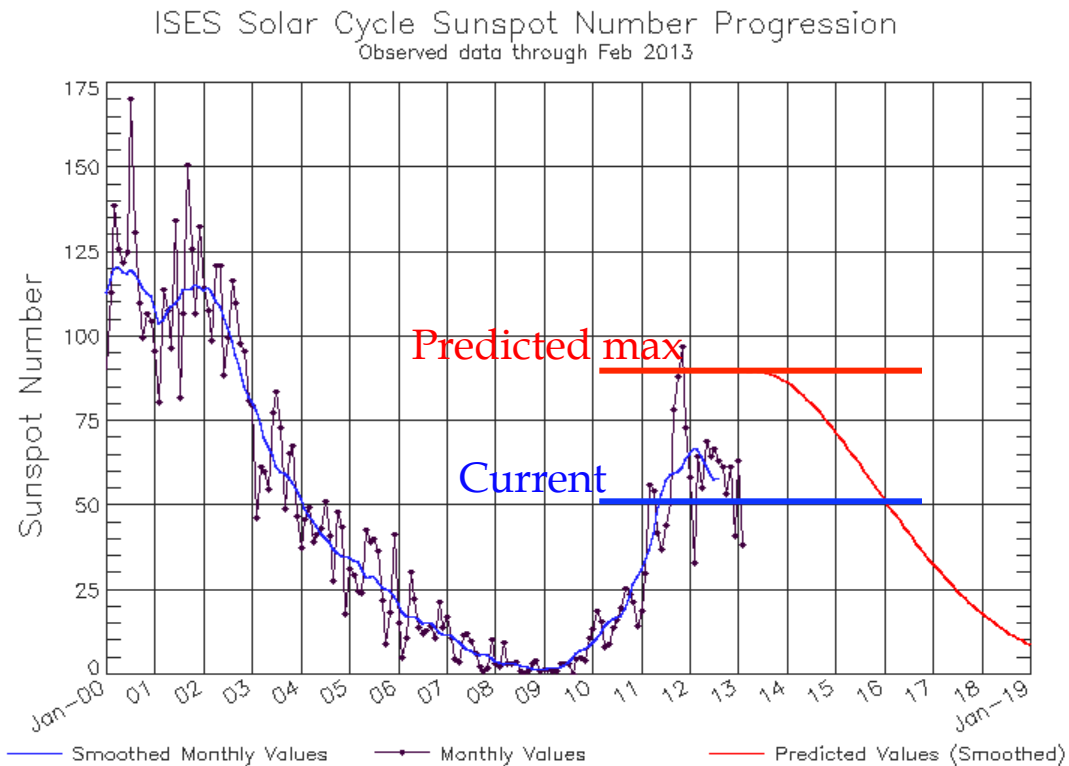
### TRMM citations





# Spacecraft and instrument status

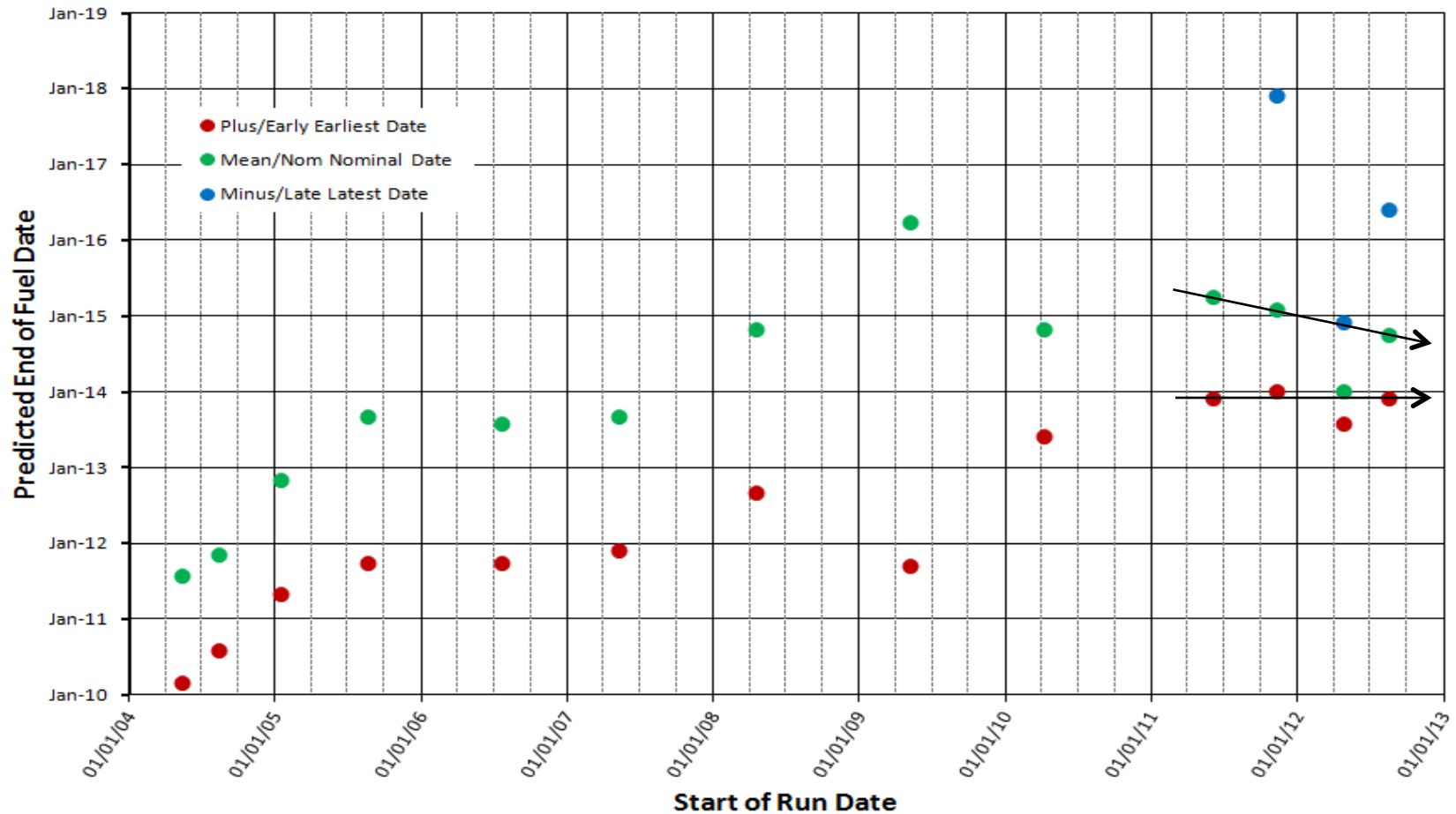
- *All spacecraft systems in excellent shape for continuation*
- *The Precipitation Radar, Microwave, Visible and IR Scanner, and Lightning Imaging Sensor (LIS) are all working well*
- *Nearing peak of the solar cycle (early 2013), so more fuel being used for maintaining TRMM's orbit*
- *Weakest solar cycle on record?*



# TRMM Lifetime Predictions Trend

September 14, 2012

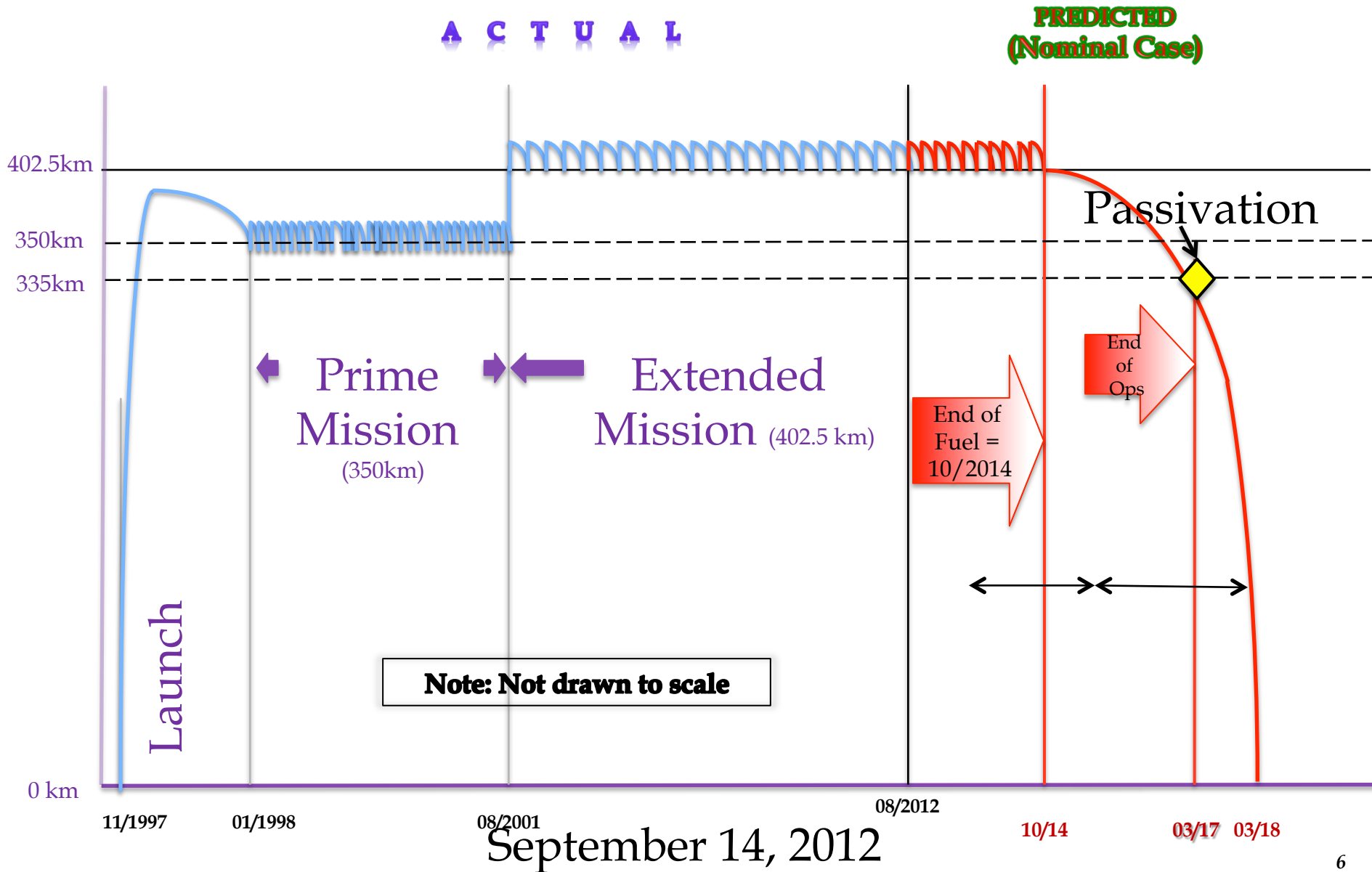
## TRMM Predicted Lifetime Analysis Trend





# TRMM Notional Timeline

## September 2012 Predictions





## TRMM Senior Review

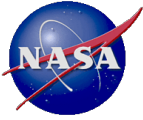
- *All operating missions in extended phase are required to submit proposals for the Senior Review Process every two years*
  - *Updates HQ about the status of missions*
  - *Used by HQ for budget planning*
- *TRMM has completed Senior Reviews since 2005*
- *Key elements for 2013*
  - *Recommended maximizing overlap with GPM by maintaining operations during orbital descent*
  - *Fuel amount, solar cycle uncertainties*
  - *Updated end-of-mission plan*



# Algorithm Updates

- *TMPA (3B42, 3B43) and TMPA-RT (3B40, 3B41, 3B42-RT) were reprocessed using Version 7 of the TRMM algorithms in 2012*
- *It was later discovered that AMSU had been omitted from the data stream*
- *In Dec. 2012, 3B42, 3B43, and retrospective real-time products were reprocessed to include AMSU*

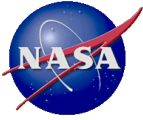




# *TRMM GV Updates*

## **Houston, Texas**

- **Beginning January 2012, rain gauge data are no longer available.**
- 24/7 GV Ops have been discontinued.
- KHGX quality controlled radar data continue to be provided to the TRMM / GPM Validation Network for satellite overpasses.
- KHGX radar has been upgraded to dual-polarimetric.



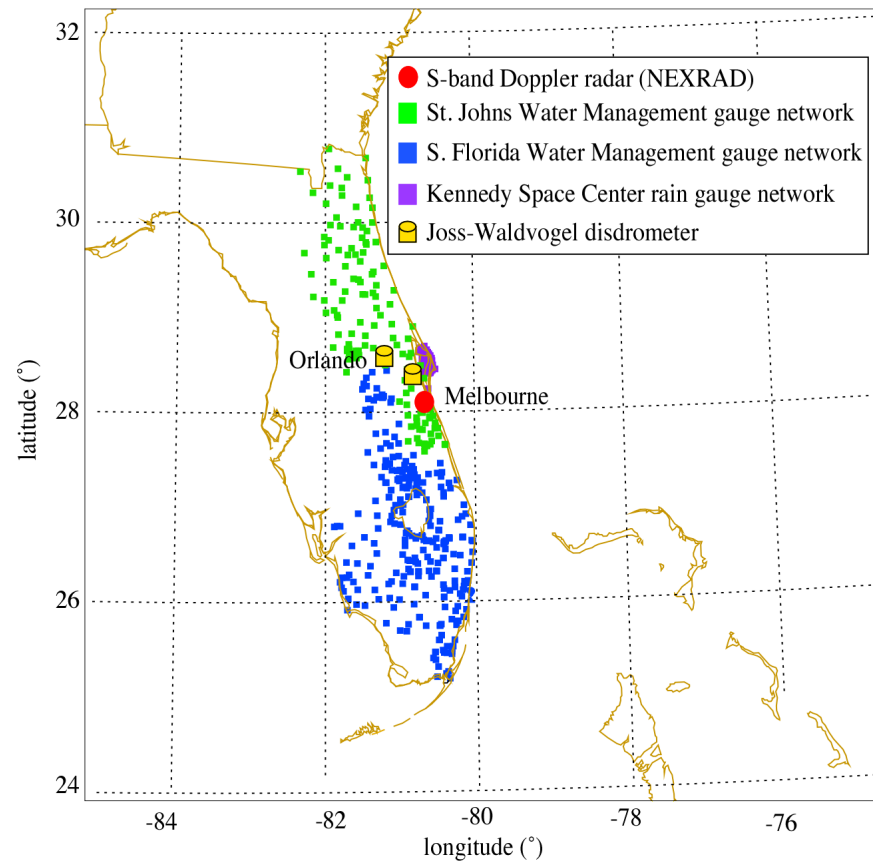
# TRMM GV Updates

## Melbourne, Florida

- TRMM GV Ops continue as 24/7 validation site.
- Funding for KSC gauge network was discontinued in 2012, but data continue to be received. Ops will continue after KSC gauge data ends as other gauge network data are available.

- KMLB radar has been upgraded to dual-polarimetric

- KMLB quality controlled data provided to TRMM / GPM Validation Network at satellite overpass times.





# TRMM GV Updates

## Kwajalein Atoll, RMI

- TRMM GV Ops continue as 24/7 validation site.
- KPOL radar continues to perform well with annual calibration team visits.
- KPOL quality controlled data provided to TRMM / GPM Validation Network.
- Recently supplied Kwaj with new rain gauges and data loggers.
- New Parsivel disdrometer installed January, 2013.

