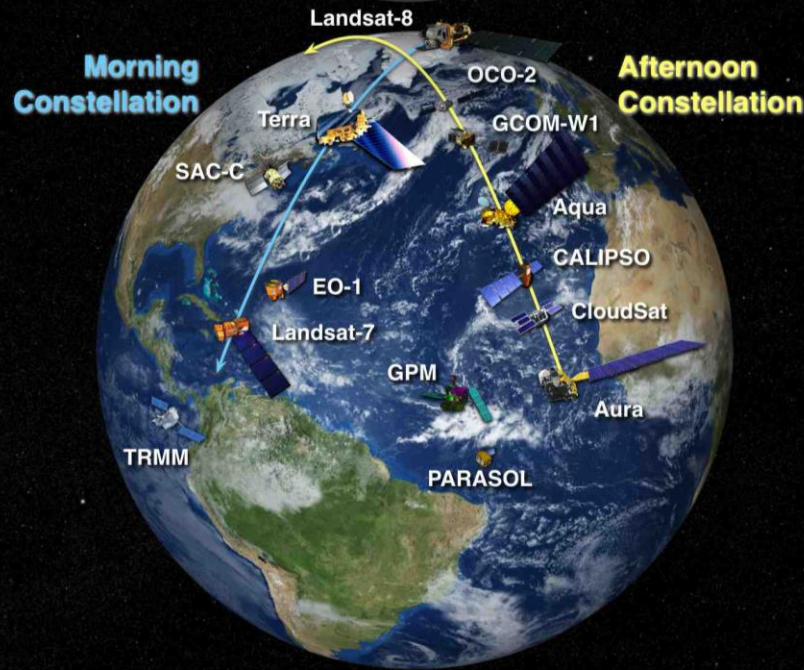




www.nasa.gov



United States



Brazil



Canada



Finland



France



Japan



Netherlands



United Kingdom

International Earth Science Constellation

Mission Operations Working Group

December 04 – 06, 2018

Constellation Coordination System (CCS) Status

Christopher Axthelm, Systems Engineer, a.i. solutions, Inc., NASA GSFC Code 595

Agenda

- CCS Purpose and Goals
- CCS 2018.2
- CCS 2018.3
- CCS Demo
- CCS for Coordinated Science
- CCS Future
 - Release 2019.1 and Beyond
- Feedback
 - Feedback and Discussion

CCS Purpose and Goals

- System for coordinating and monitoring Constellation safety of the Earth Sciences Constellation (ESC) missions and is a central source of data sharing and operational planning.
 - Primary tool for monitoring the Constellation configurations.
 - Supports information exchange among/between partner ESC missions.
 - Transfer critical data between the Mission Operation Centers (MOCs), Conjunction Assessment Risk Analysis (CARA), and other authorized mission users.
 - Mission Analysis tools and automated health and safety monitoring.
 - Automated constellation safety warning notifications.
 - Graphical visualization of orbital data.
- The latest release, CCS 2018.3, was deployed to operations on 28 November 2018.

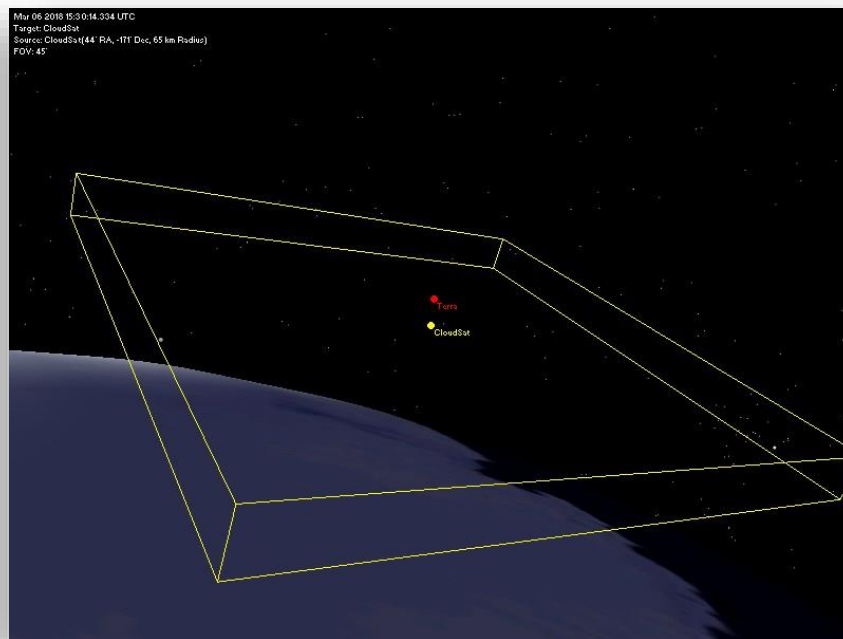
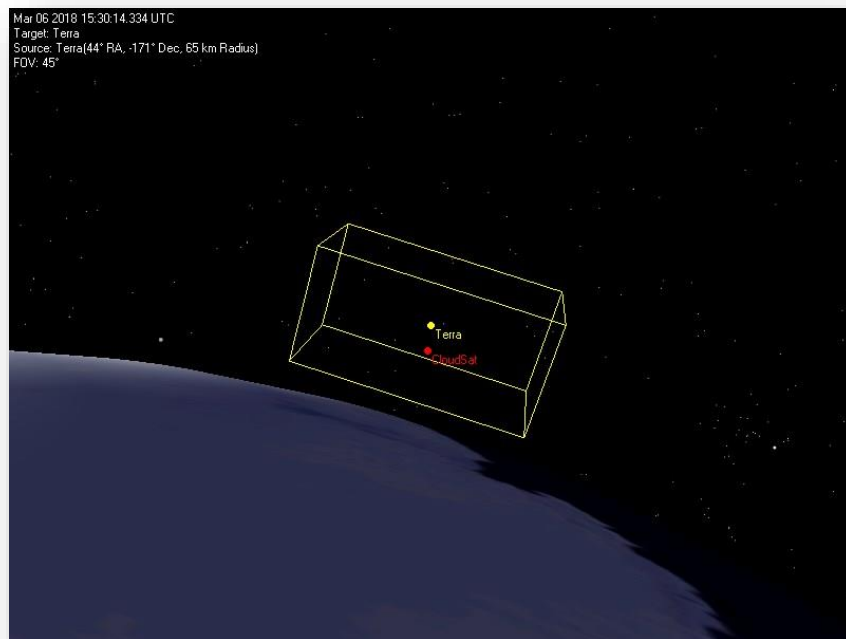
CCS 2018.2

Released: 15 August 2018

- Added imagery for the Close Approach and Control Box violation emails.
- Updated CCS to perform analyses asynchronously.
 - Upon requesting a long (or time consuming) analysis, the user now is given the option to wait, cancel, or send the analysis to the Saved Analysis repository.
 - When a pending analysis is saved, the user will receive an email when the analysis is complete.
- Updated the control box analysis to better handle turnarounds and other edge cases.

CCS 2018.2

Released: 15 August 2018



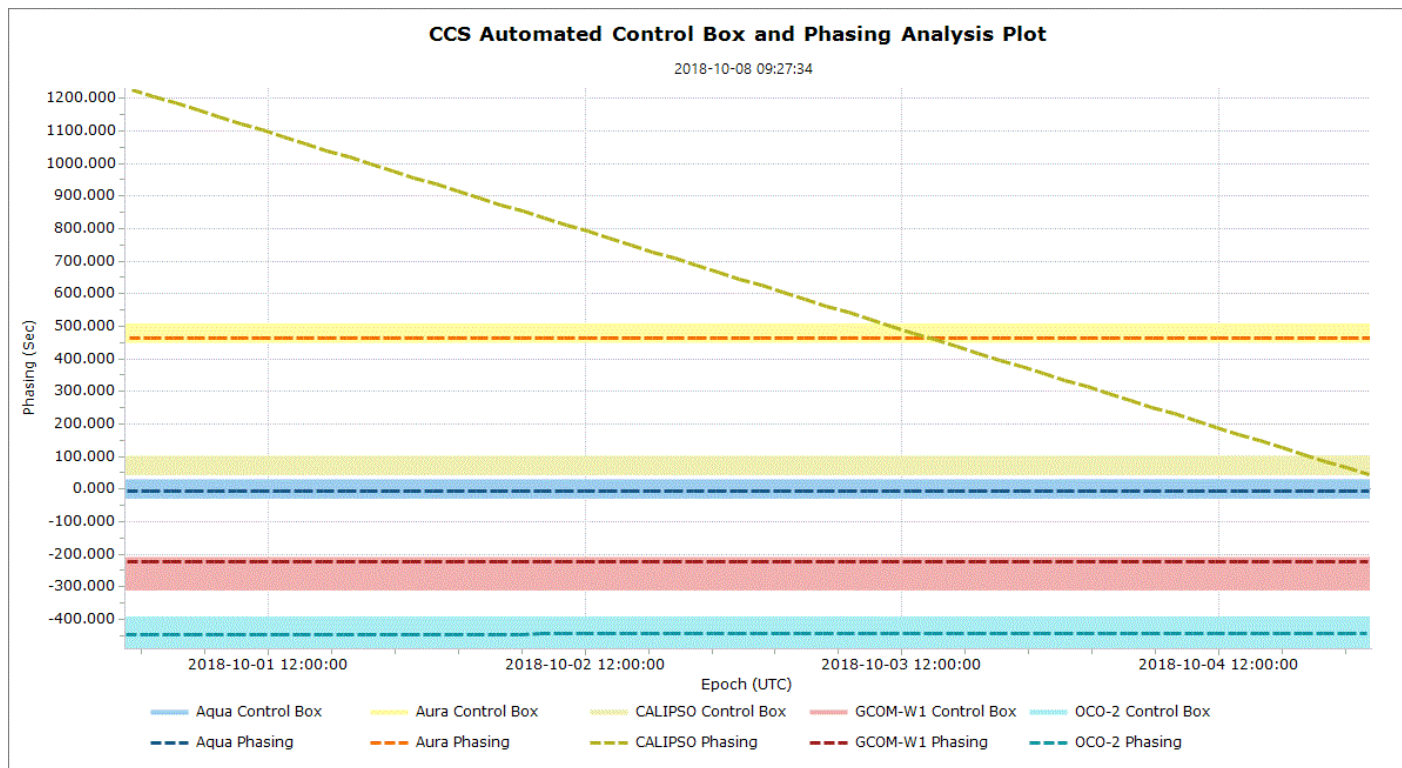
Close Approach imagery examples for the Terra-CloudSat close approach on March 6th, 2018.

CCS 2018.3

Released: 28 November 2018

- Added NORAD 2-Line Element (TLE) to Consultative Committee for Space Data Systems (CCSDS) orbit ephemeris message (OEM) automatic conversion for each mission.
- Added prioritization to the analysis queue introduced in 2018.2, allowing for more targeted processing order beyond First-in-first-out (FIFO).
- Added an administration page for the queue to allow more insight into the queue and the ability to reorder of analyses being processed.
- Improved logging throughout the system, decluttering the legacy logs, redefined logging categories, and added more specific logging throughout CCS.

CCS 2018.3



The Control Box violation plot imagery was updated to include:

- Cleaner spacecraft lines
- Better defined control box shading
- A decluttered key.

Demo

Demo Time!

Future of CCS

- CCS is taking a three-pronged approach to design and development work.
 - *Streamline*: Fix "pain points" on the website for the users that log in.
 - *Automate*: Anything that can be done outside of the website, to serve the users without the need to log in, will help more users utilize the system.
 - *Coordinated Science*: Review automated analyses, emails, mission details, and user needs to understand what CCS can do for science coordination for our missions.

Feedback

- What ideas or suggestions do you have?
- What are the capabilities you find most useful currently?
- What would make CCS more useful to you?
- Would additional training and/or outreach be beneficial to you?

Feedback

- Thank you for your continued support!
- For all CCS communications please contact:

ccs-support@lists.hq.nasa.gov