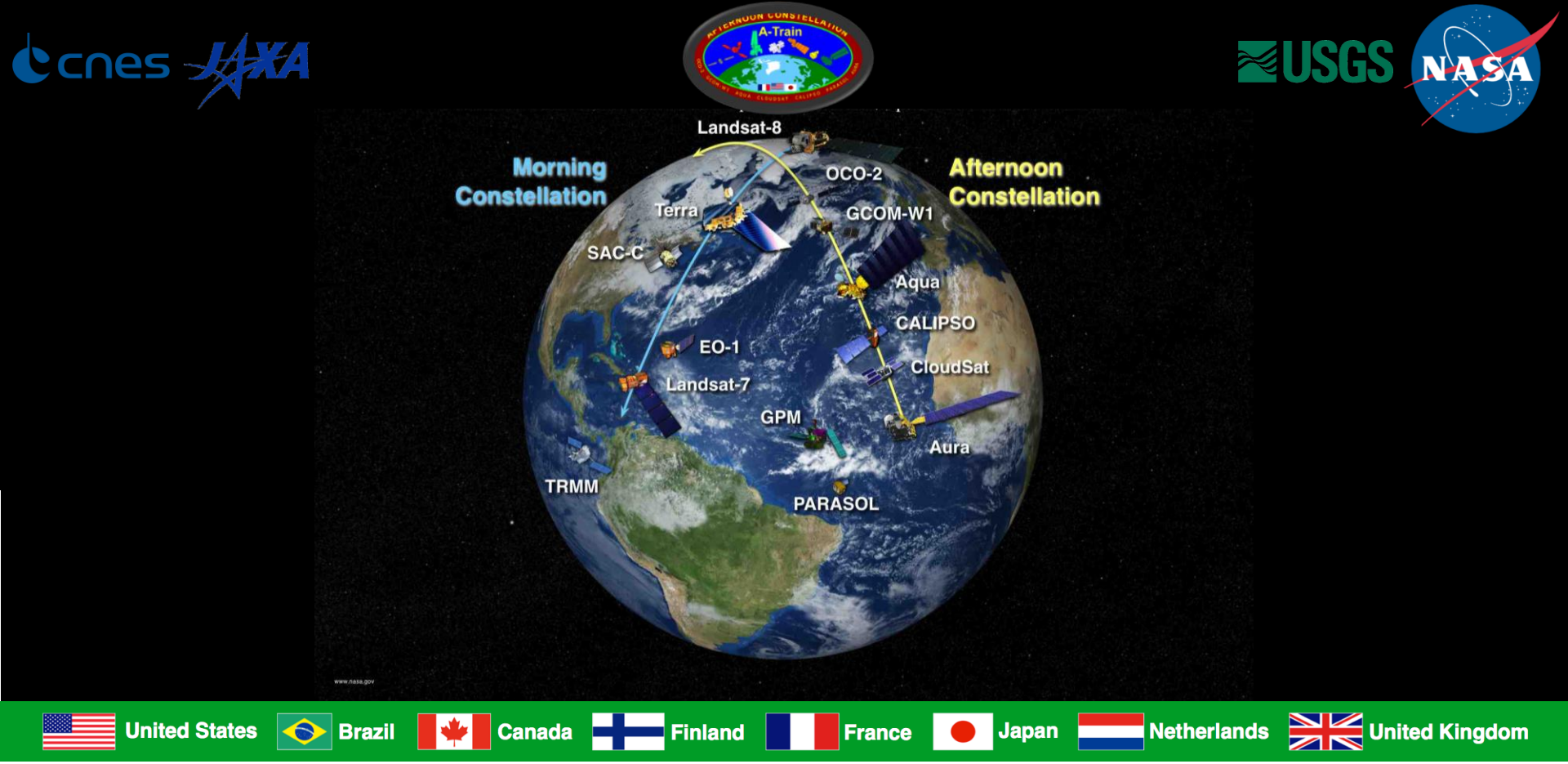

International Earth Science Constellation Mission Operations Working Group

June 13 – 15, 2017

Constellation Coordination System (CCS) Status

ccs-support@lists.hq.nasa.gov

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Agenda

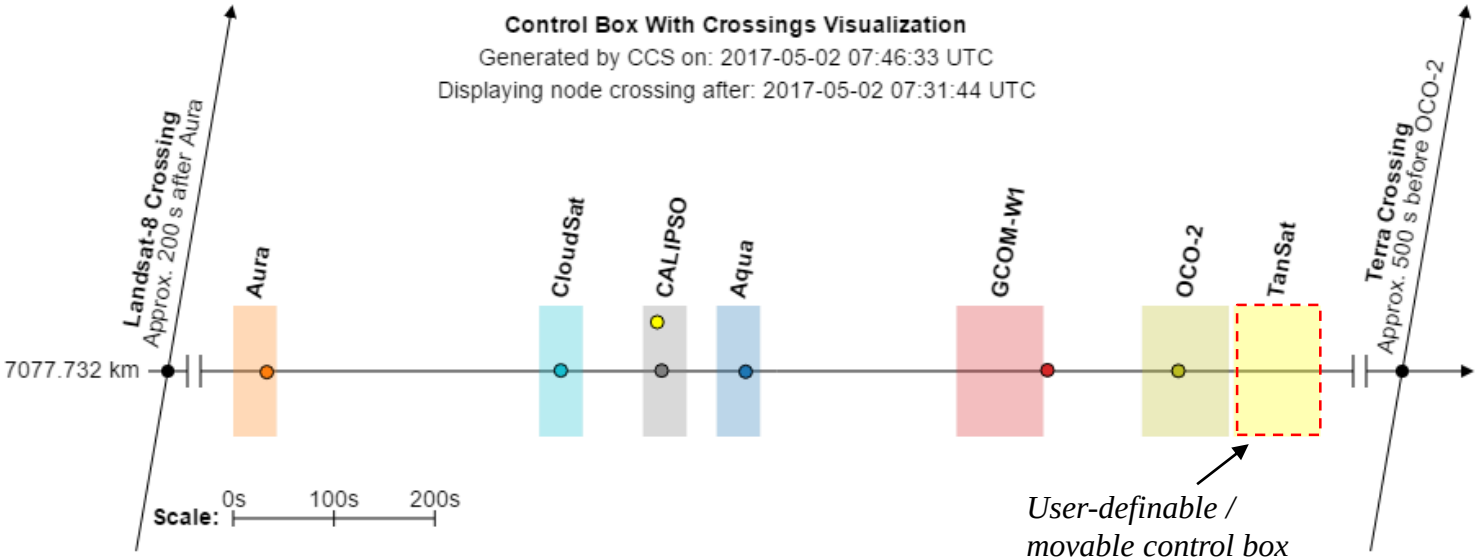
- CCS Purpose and Goals
- CCS Release 7.3
- CCS Release 2017.1
  - Overview
  - Schedule
  - Two-Factor Authentication
  - Close Approach Analysis
- Future of CCS
  - Website Analytics
  - Feedback and Discussion

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
  - Enables information exchange among/between domestic and international partner ESC missions, including access to nominal predicted mission ephemerides
  - Transfer critical product data between the Mission Operation Centers (MOCs), 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 7.3, was deployed to operations on January 31, 2017.

CCS 7.3 Review

- CCS Tools, excluding the Satellite Situational Awareness tool, provide the capability for users to upload any ephemeris or NORAD TLE in a CCS-supported format as an input to the tool.
- User uploaded files can be associated with a “user-defined” mission, or with an existing CCS mission.
- New control box visualization on the Home Page emphasizing phasing separation and relation of missions to their control box.



CCS 2017.1 - Overview

- ***Analyses Consolidation and Improvements***
  - Implement pagination for the product selector to reduce the time for Tools pages to initially load.
  - Combine the Close Approach and Constellation Close Approach analyses into a single unified analysis with enhanced capabilities.
  - Combine the Ad Hoc Reports and Ad Hoc XY Plots mission plans in the Ad Hoc analysis.
- ***User Interface and User Experience Consistency***
  - Add measurement units to the Mission Definition page for Mass, Drag Area, and SRP Area parameters.
  - Specify the output ephemeris type when more than one ephemeris input type is selected in Merge Rules.
  - Modify buttons, labels, warnings, and data values across the CCS site to enable a consistent ‘look and feel’.

CCS 2017.1 - Overview

- ***Database Enhancements***
  - Migrate product files from database storage to file storage.
  - Migrate configuration items in the CCS codebase to the database.
- ***Security Improvements***
  - Enable two-factor authentication on all CCS accounts to comply with ESMO security requirements.
  - Reduced session timeout period to two hours.
  - Mitigate known security threats including customized error pages, disabling non-required system capabilities, secure data transfer, and encryption of sensitive information.
  - Send communications from CCS via NASA mail servers using official nasa.gov email addresses.
- ***Site Analytics***
  - Addition of government required metadata and analytics.

CCS 2017.1 - Schedule

- CCS 2017.1 is currently undergoing Factory Acceptance Testing (FAT).
- The remaining schedule is:
  - Site Test Readiness Review: June 16, 2017
  - Site Acceptance Testing: June 19, 2017 - June 30, 2017
  - Operational Readiness Review: July 6, 2017
  - Deployment to Operations: July 17, 2017 – July 19, 2017

CCS 2017.1 - Two-Factor Authentication

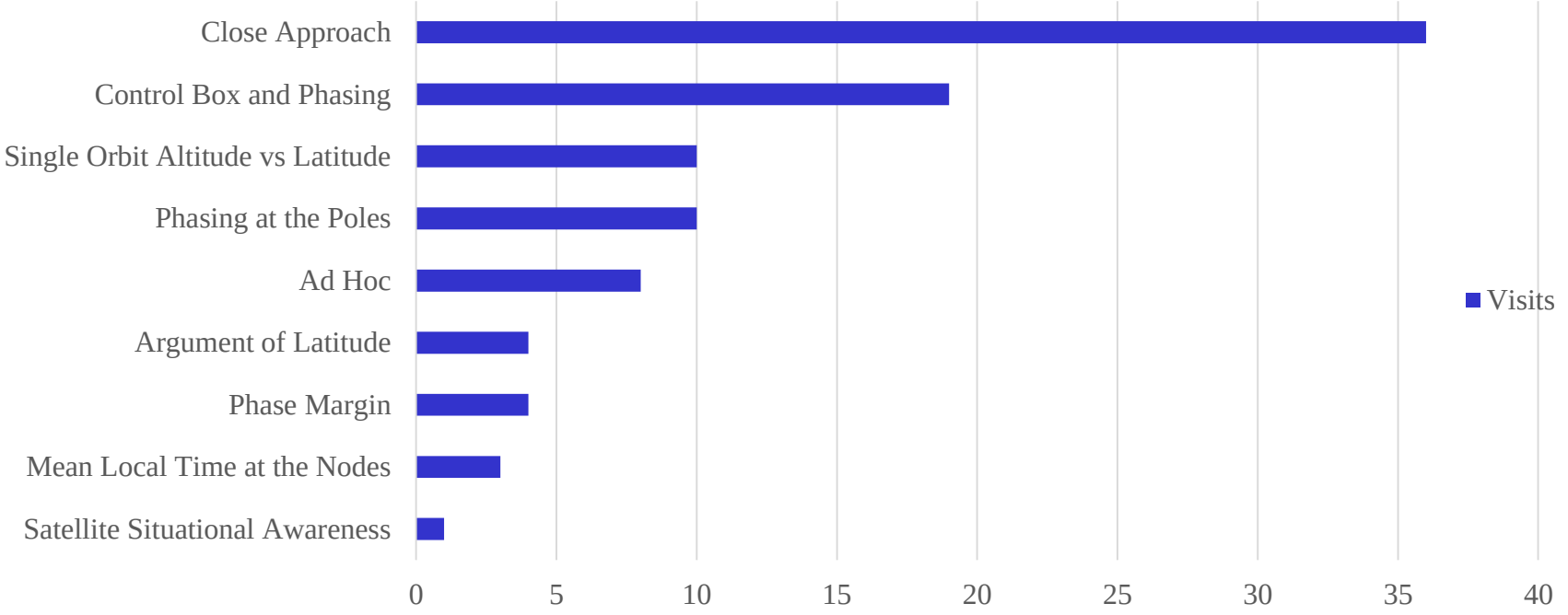
- Starting with the deployment of CCS 2017.1, in order to meet security requirements, two-factor authentication will be required during the login process.
- Upon first login, users will be prompted to enroll in two-factor authentication. Any password manager may be utilized including Google Authenticator, 1Password, Authy, etc…
- Ten one-use backup codes will also be provided in case access to the password manager is lost. Keep these in a secure location!
- Demo

CCS 2017.1 - Close Approach Analysis

- Close Approach analysis and Constellation Close Approach analysis have been merged into a single analysis in CCS 2017.1.
- The updated Close Approach analysis provides three primary capabilities:
  - Calculation and reporting of Time of Closest Approach (TCA) for the analysis span regardless of step size.
  - Implementation of customizable Zone of Exclusions (ZoE) for violation reporting including customizable ZoE shapes (sphere, ellipsoid, and boxoid).
  - Calculation and reporting of exact violation spans, including minimum range, within the analysis span regardless of step size.
- Demo

Future of CCS - Analytics

- From 01-Feb to 31-May, there were 43 unique visitors to the CCS operational web site.
  - 61% of the total visits only accessed the Home Page.
  - 25% of the total visits utilized a CCS Tool.
  - 551 products were downloaded by 22 unique users.
  - Of 111 registered users, 22 have a total of 131 active subscriptions.



Future of CCS – Feedback / Discussion

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

- Thank you for your continued support!

- For all CCS communications please contact:

  ccs-support@lists.hq.nasa.gov