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"Rummaging in the government's attic"

Description of document:	Description of Space Situational Awareness at National Oceanic and Atmospheric Administration (NOAA) 2021
Requested date:	29-November-2021
Release date:	04-February-2022
Posted date:	04-April-2022
Source of document:	Freedom of Information Request National Oceanic and Atmospheric Administration Public Reference Facility (SOU1000) 1315 East-West Highway (SSMC3) Room 9719 Silver Spring, MD 20910 Fax: 301-713-4040 Email: FOIA@noaa.gov FOIA Online

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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL ENVIRONMENTAL SATELLITE, DATA,
AND INFORMATION SERVICE

February 4, 2022

Re: FOIA Request DOC-NOAA-[2022-000261]

This letter is in response to your Freedom of Information Act (FOIA) request entered into FOIAonline, our request tracking database, on November 29, 2021 in which you requested:

“Documents at the NOAA Office of Space Commerce describing the progress in NOAA improving Space Situational Awareness (SSA) to achieve the ability to provide commercial and international space situational services by January 1, 2024, when DoD is no longer required to provide these services. I limit this request to documents dated since January 1, 2021.”

We are releasing eighteen pages (one document) responsive to this request as follows:

- Seventeen pages are being released to you in their entirety.
- One page is fully redacted under FOIA Exemption U.S.C.552(b)(5) which protects "inter-agency or intra-agency memorandums of letters which would not be available by law to a party ...in litigation with the agency." As such, it has been construed to "exempt those documents, and only those documents, normally privileged in the civil discovery context."

You have the right to file an administrative appeal if you are not satisfied with our response to your FOIA request. All appeals should include a statement of the reasons why you believe the FOIA response was not satisfactory. An appeal based on documents in this release must be received within 90 calendar days of the date of this response letter at the following address:

Assistant General Counsel for Employment, Litigation, and Information
U.S. Department of Commerce Room 5896
1401 Constitution Ave. NW
Washington, DC 20230

An appeal may also be sent by email to FOIAAppeals@doc.gov or by FOIAonline at <https://foiaonline.gov>.

For your appeal to be complete, it must include the following items:

- a copy of the original request,
- our response to your request,
- a statement explaining why the determination was in error; and
- “Freedom of Information Act Appeal” must appear on your appeal letter. It should also be written on your envelope, email subject line, or your fax cover sheet.



FOIA appeals posted to the email box, FOIAonline, or Office after normal business hours will be deemed received on the next business day. If the 90th calendar day for submitting an appeal falls on a Saturday, Sunday or legal public holiday, an appeal received by 5:00 p.m., Eastern Time, the next business day will be deemed timely.

FOIA grants requesters the right to challenge an agency's final action in federal court. Before doing so, an adjudication of an administrative appeal is ordinarily required.

The Office of Government Information Services (OGIS), an office created within the National Archives and Records Administration, offers free mediation services to FOIA requesters. They may be contacted in any of the following ways:

Office of Government Information Services
National Archives and Records Administration
Room 2510
8601 Adelphi Road
College Park, MD 20740-6001

Email: ogis@nara.gov

Phone: 301-837-1996

Fax: 301-837-0348

Toll-free: 1-877-684-6448

If you have questions regarding this correspondence please contact Maria Burke at maria.burke@noaa.gov or by phone at (202) 308-4959, or the NOAA FOIA Public Liaison Tony LaVoi at tony.lavoi@noaa.gov or by phone at (843) 740-1274. Please refer to your FOIA request tracking number DOC-NOAA-2022-000261 when contacting us.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark S. Paese", written in a cursive style.

Mark S. Paese

Deputy Assistant Administrator for
Satellites and Information Services



National Environmental Satellite, Data,
and Information Service

September 30, 2021

Maneuvering into the Future: Open-Architecture Data Repository Demonstration

by NOAA's Office of Space Commerce

Stephen A. Volz, Ph.D.

Assistant Administrator for Satellites and Information

Scott Leonard, Special Advisor to the Director,
Office of Space Commerce

Moriba K. Jah, Ph.D.

University of Texas at Austin



What is the SSA Challenge?

- DoD currently tracks about 29,000 objects – the number is steadily increasing
 - We expect over 50,000 new satellites in orbit by the year 2030
- Increase in commercial launches, operations, and manned spaceflight will impact the future space operating environment
- DoD's priority is national space defense
- Human space flight planned for the future
- Space Environment becoming congested and contested
 - New missions like satellite servicing, space tourism, and commercial space stations
- Global concern

How OADR supports SSA

- Space tracking data repository
- Platform to promote commercial space industry collaboration
- Secure data ingest to ensure data integrity measures, standards, and quality
- Capability to safeguard proprietary or sensitive data
- Cloud-based SSA Safety Information
- Improved SSA coverage/accuracy by integrating commercial data
- Orbital debris information through near-real time maneuver planning to operators

Thank You to our OADR Demonstration Partners



THE UNIVERSITY OF
TEXAS
— AT AUSTIN —

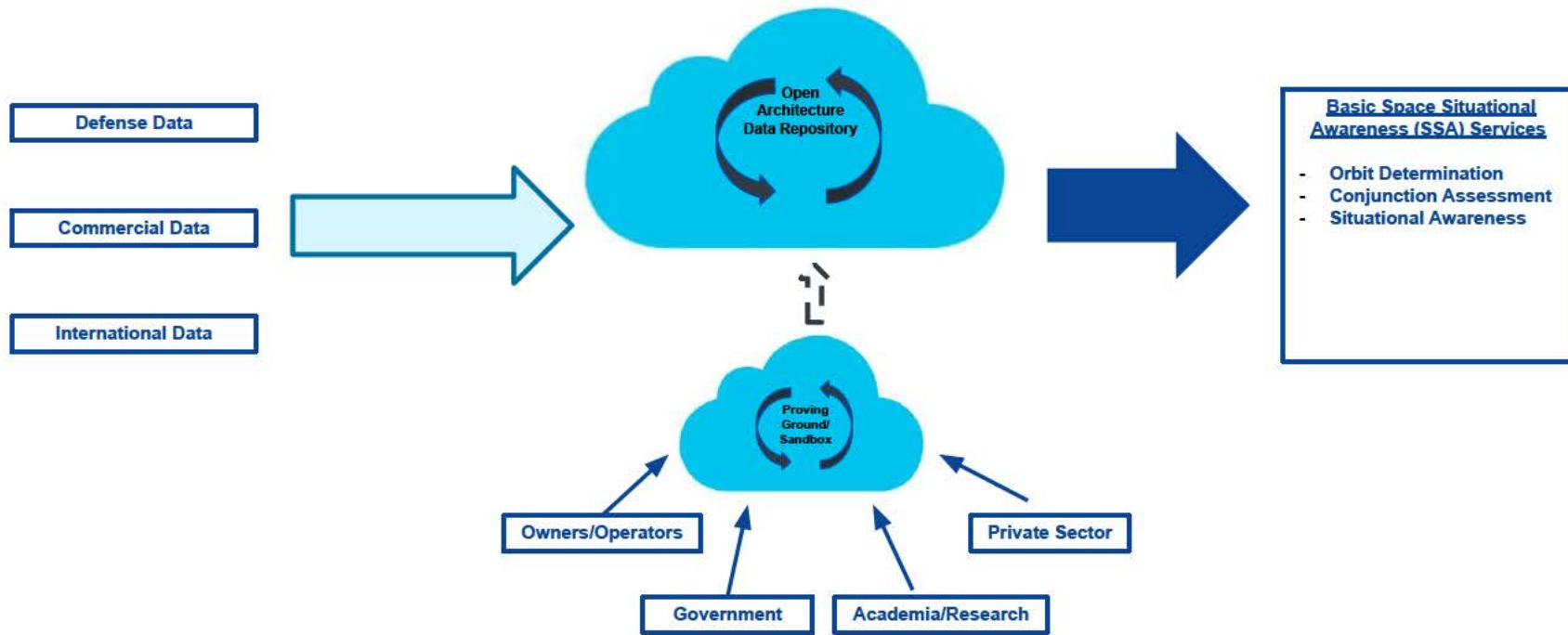




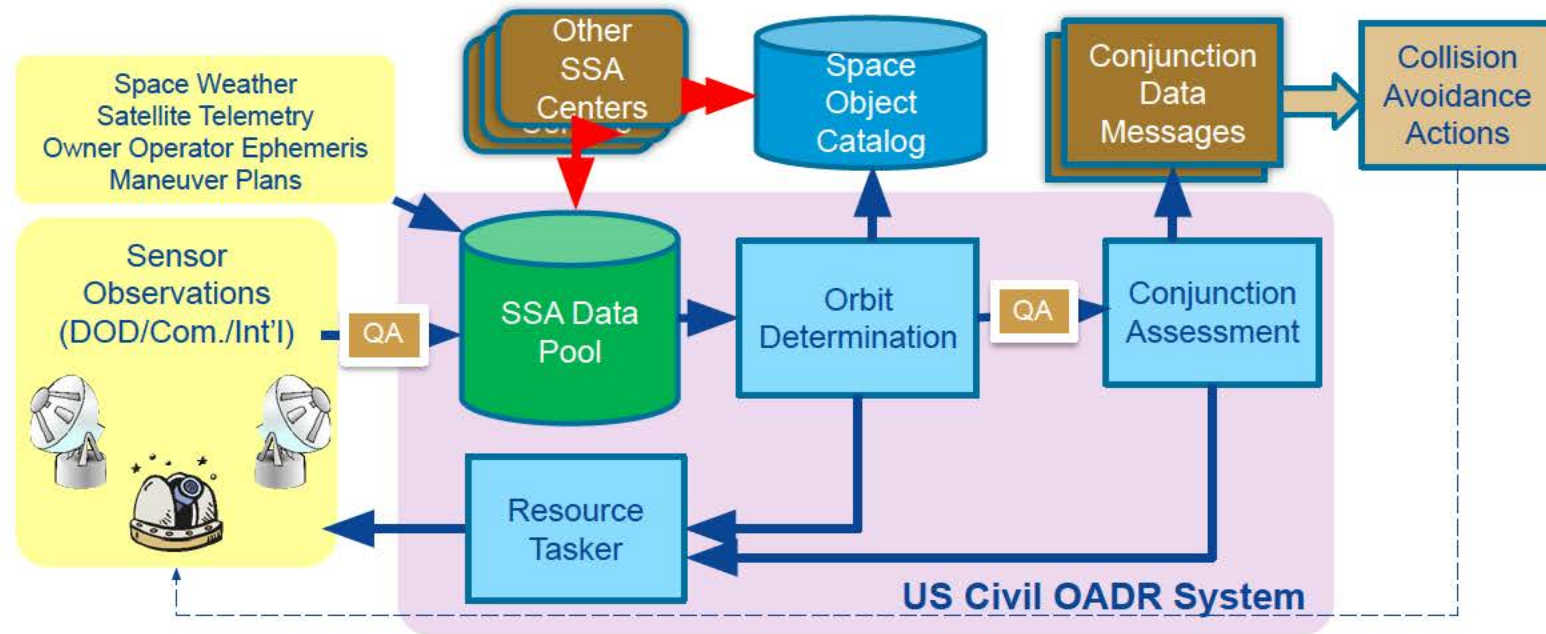
OADR Prototype Agenda

- Design and architecture
- Types of data tested
- How the OADR works
- Examples of SSA products
- Proving Ground/Sandbox

OADR Prototype Overview

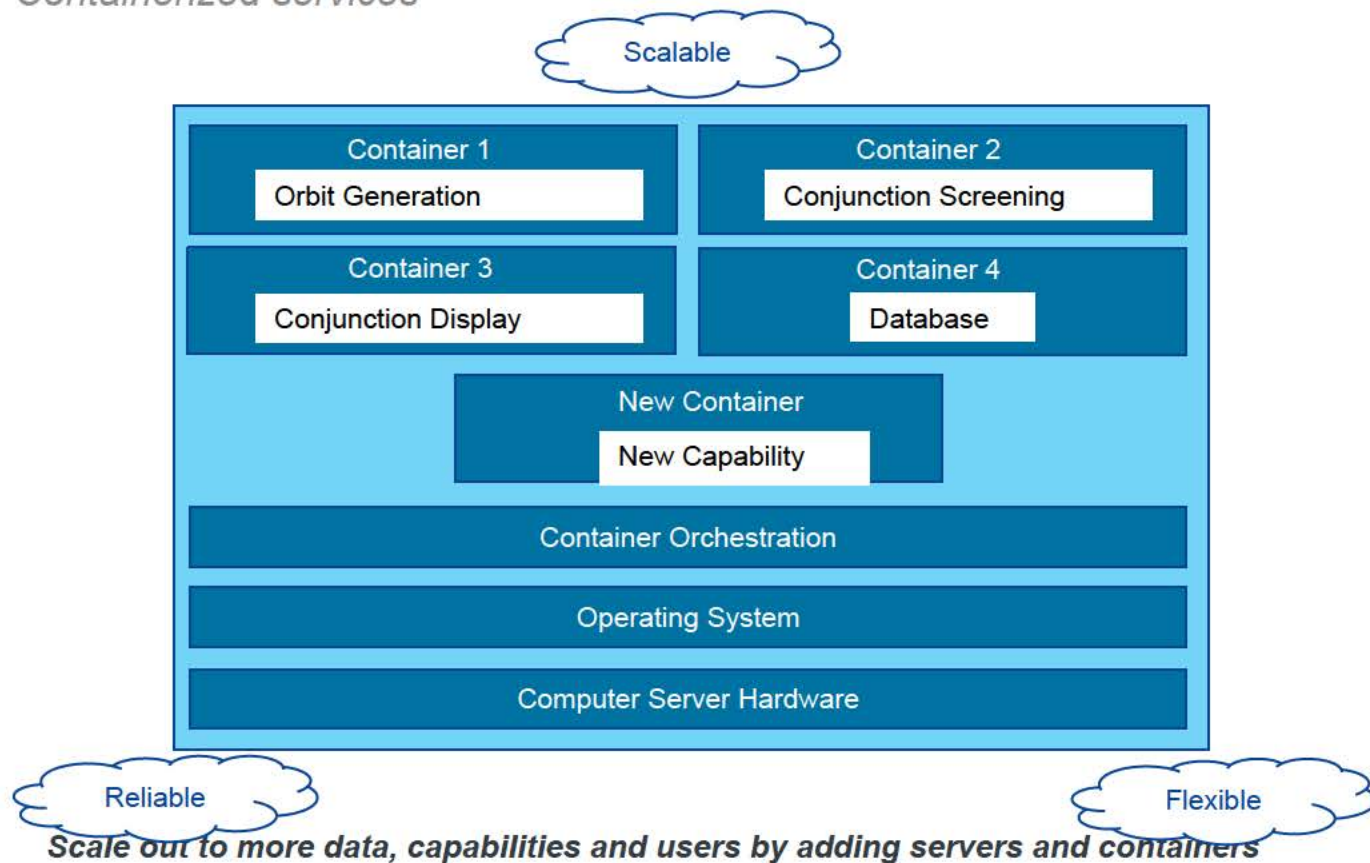


Notional SSA Safety Process



OADR Cloud Software Architecture

Containerized services





OADR Data

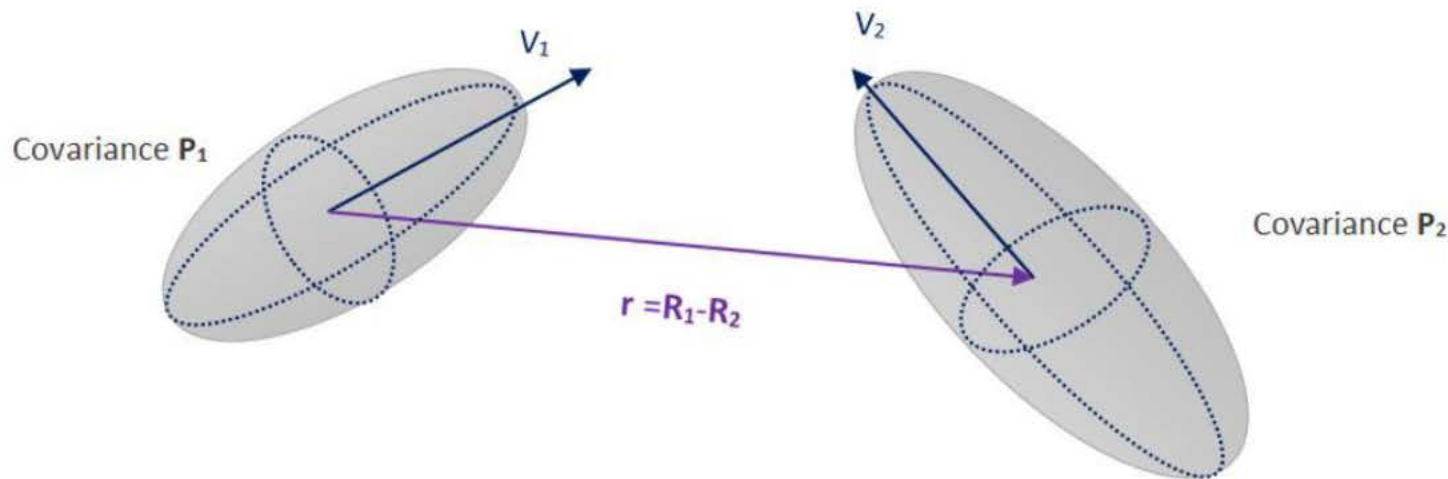
- Department of Defense SSA Data
- Commercial SSA Data
- Fused DOD + Commercial Data Orbit Solutions

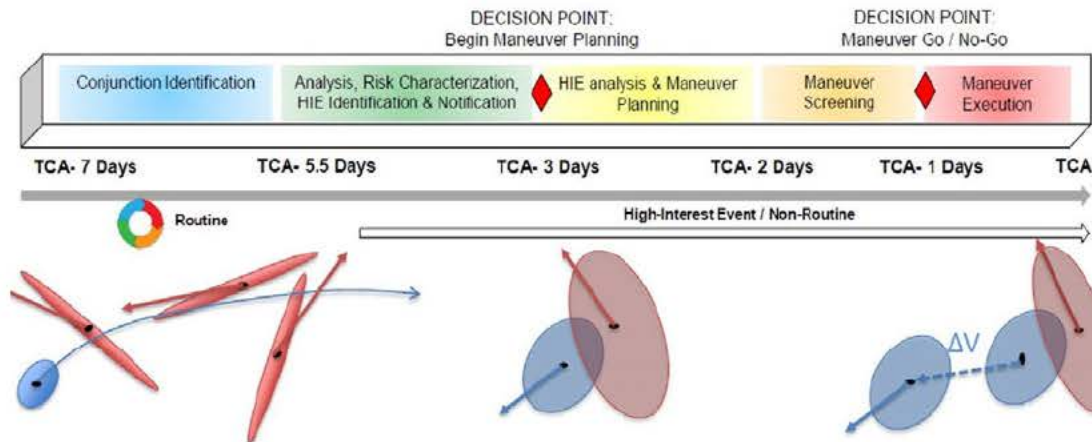
A conjunction warning notification is similar to a hurricane



Analogy of conjunction warning to a hurricane

Satellite Probability of Collision

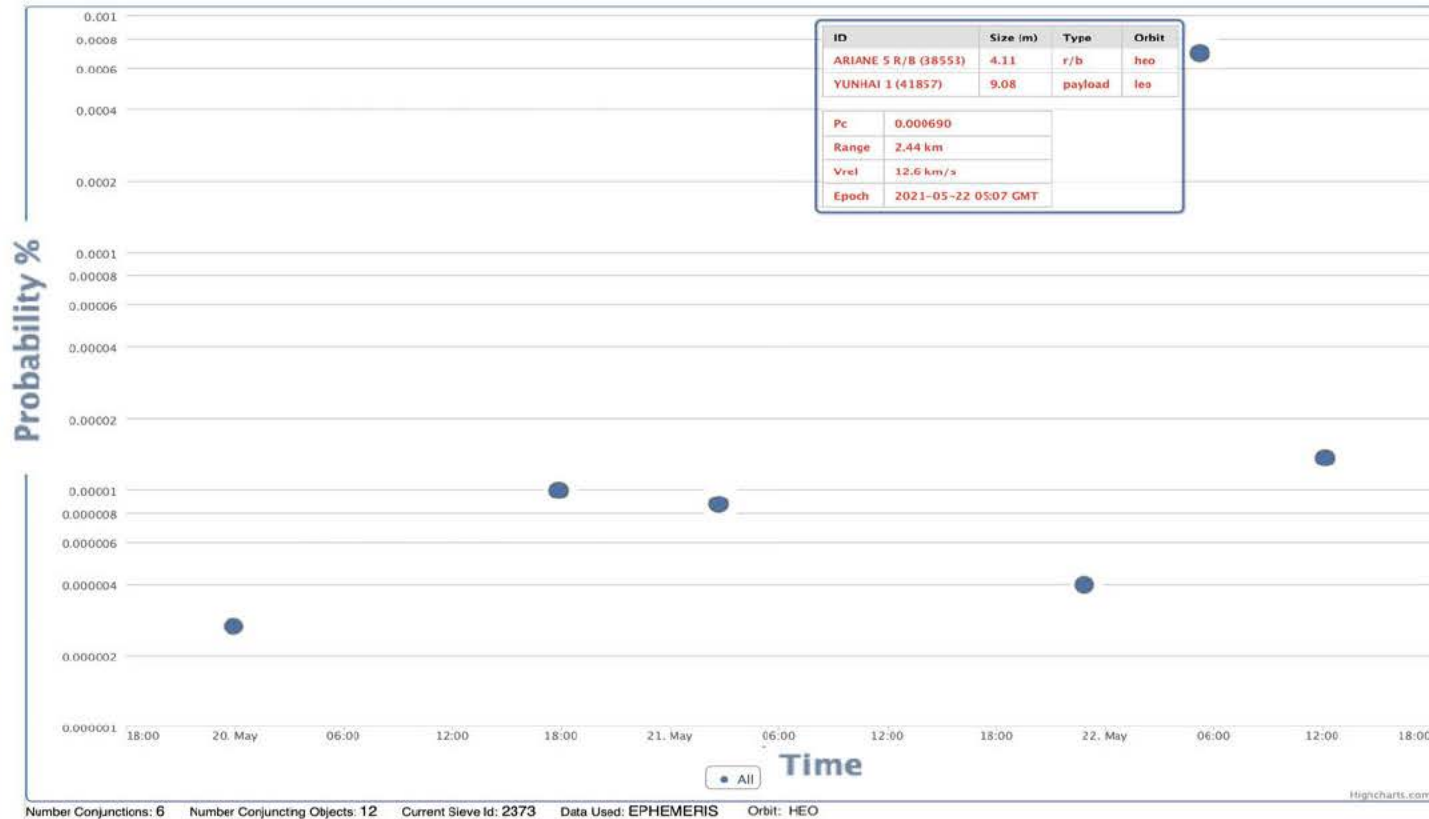




Open Architecture Data Repository

Conjunction Summary

Conjunction Summary (Probability of Conjunction vs. Time)

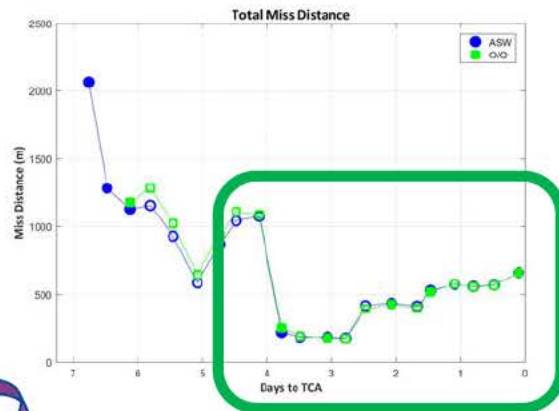
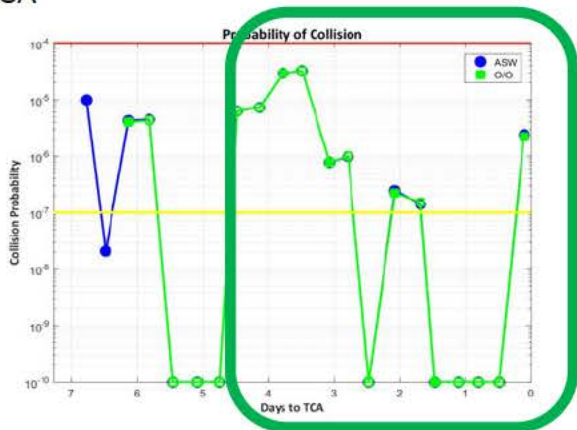


Conjunction Data Message (CDM)

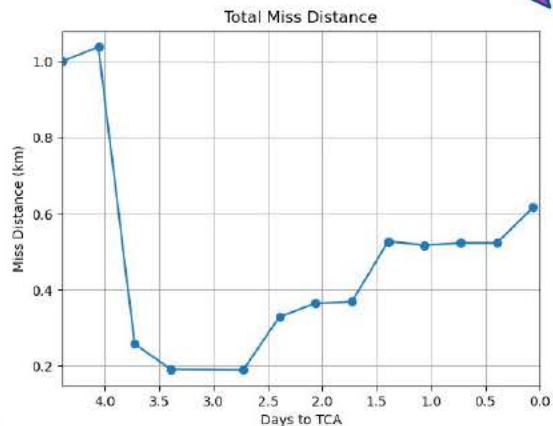
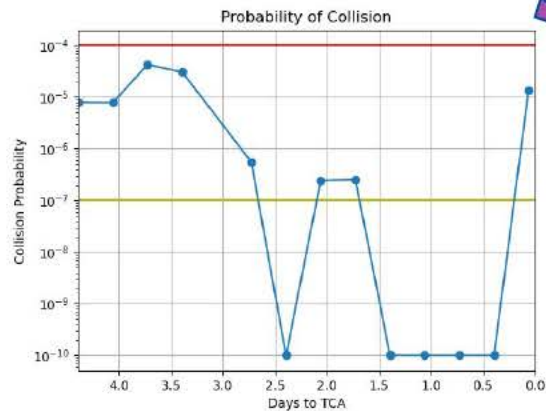
ID	Size (m)	Type	Orbit
THORAD AGENA D DEB (19423)	0.0000100	debris	leo
OCO 2 (40059)	6.00	payload	leo
Pc	0.0000426		
Range	0.258 km		
Vrel	14.7 km/s		
Epoch	2021-05-06 17:26 GMT		

OADR Matches NASA Results

NASA

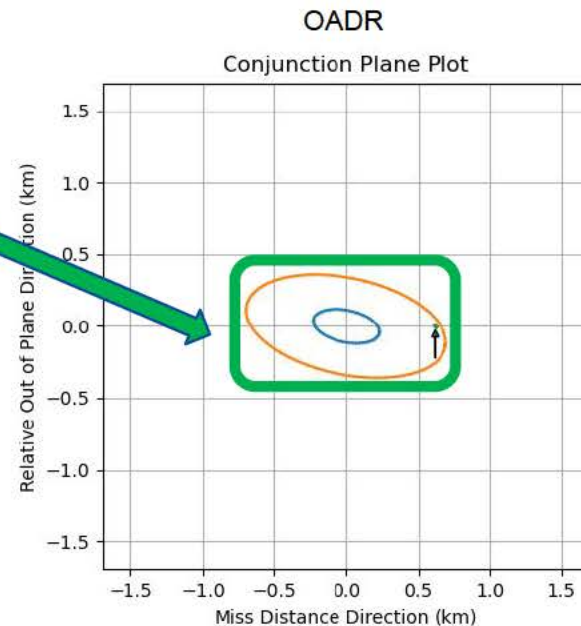
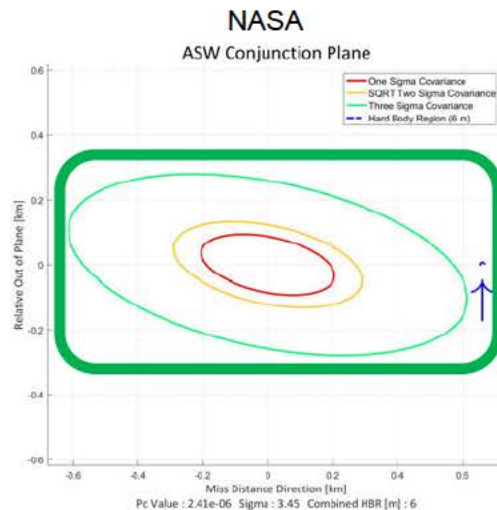


OADR



Example: OCO-2 vs. THORAD AGENA Debris

OADR Matches NASA Results



OADR Summary

- ☐ *Cloud based, open, scalable architecture*
 - *Allows easy, periodic technology upgrades*
- ☐ *Meets the needs of commercial owner/operators*
 - *Provides comprehensive SSA products to the operator*
 - *Transparency will engender trust of the community*
- ☐ *Promotes safe satellite operations*
 - *Produces comprehensive on-orbit collision notifications*
- ☐ *Tested with real-world data from the DoD*
 - *Also tested with data from multiple sources*
- ☐ *OADR output matches DoD results, validated by NASA*



Slide 18 is redacted under Exemption (b)(5).

Exemption (b)(5) Privileged Interagency or Intra-Agency Memoranda or Letters

This exemption protects "inter-agency or intra-agency memorandums of letters which would not be available by law to a party ...in litigation with the agency." As such, it has been construed to "exempt those documents, and only those documents, normally privileged in the civil discovery context."