



USGS NCAC 2023 Wildfire Mapping Support

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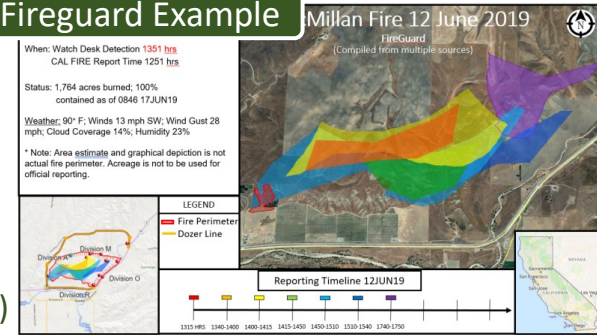
Agenda

- NCAC Fire Support Overview
- Supporting Authority
- Partners and Customers
- FireGuard Overview
- Aircraft 3/Firehawk Overview
- 2023 Aircraft 3 statistics

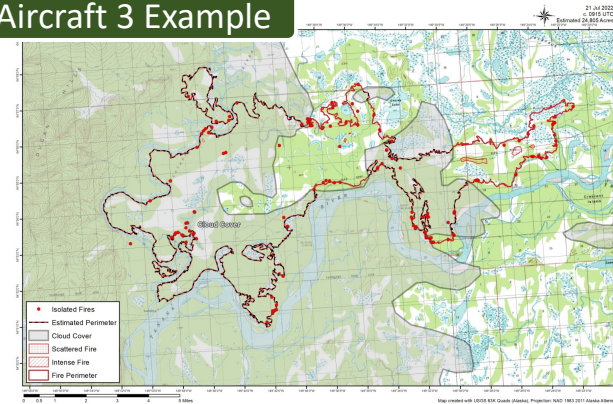
USGS NCAC Fire Support Overview: FireGuard & Aircraft 3 (AC3)

- NCAC supports two wildfire mapping efforts
 - FireGuard – broad area coverage, persistent, lower spatial resolution
 - Aircraft 3/Firehawk – specific tasked areas, high spatial resolution
- Both capabilities produce data for the entire US, including AK and HI
- FireGuard and Aircraft 3 source data are classified US Intelligence imagery
 - NCAC supports AC3 jointly with the National Geospatial-Intelligence Agency (NGA)
 - FireGuard is enabled under the CAC and is supported by DoD and NGA
- FireGuard and AC-3 data products are unclassified derived products
- FireGuard products are delivered every 10 minutes
 - Always On
 - Nationwide coverage
 - Not perimeters *per se*, fire detections and fire spread
- AC-3 is tasked by the National Interagency Fire Center (NIFC)
 - 3-6 Selected incidents per night
 - Single perimeter per incident
 - Functionally similar to NIROPS airborne mapped products – 5-10 meter scale

Fireguard Example



Aircraft 3 Example



Legal Foundations for Civil Support - CAC Authorities

- AC-3 and FireGuard authorized under the CAC Charter
 - Signed by:
 - Director of National Intelligence (DNI)
 - Secretary of Interior
- Assist in ensuring the **effective application** of data collected by **overhead capabilities** to **support** the appropriate worldwide production, analysis, and research programs of **CAC member organizations**.
- **Oversee CAC member organizations' requests** for the collection of remotely sensed data **to ensure the protection of Constitutional and other legal rights of U.S. persons** and ensure that such requests and the use of such data are **consistent with the authorities and responsibilities** of such organizations and are **in accordance with authorized programs**.



CAC authorizes the proper use of classified data for civil purposes: Defense of the Homeland; Environmental observations; Protect the lives and property of US citizens - with rigorous legal oversight

Supported Agencies and Organizations

STATEMENT OF INTENT
between:
U.S. Department of the Interior
Office of Wildland Fire and
U.S. Geological Survey
concerning:
Incident Response Support

This is a general agreement between the Office of Wildland Fire (OWF) and the U.S. Geological Survey (USGS) for the level of support and collaboration between these parties in support of Incident response for the Department of the Interior (DOI) Wildland Fire Management (WFM) program.

I. Introduction and Purpose
The DOI's WFM program is composed of OWF and four bureaus with wildland fire management responsibilities – the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM), the Fish and Wildlife Service (FWS), and the National Park Service (NPS). However, other bureaus and agencies play an integral role in supporting the WFM program, and collaboration is essential in providing a unified and coordinated response to managing wildland fire.

This documents the terms and provisions required for OWF to coordinate with USGS since it is not funded under the WFM program and a mechanism for funding is needed when these entities provide personnel and other support during wildland fire incidents. This agreement promotes the framework of collaboration and partnership under the Service First authority (as provided by the Consolidated Appropriations Act, 2014, Public Law 113-76) and supports the objectives of improved customer service, increased operational efficiency, and enhanced stewardship of federal lands and resources.

II. Scope and Duration of Agreement
The parties acknowledge that this document is only applicable for incident response support under the Suppression and Emergency Stabilization (ES) program activities.

The effective date of this document will commence upon the date of the final signature, and will remain in effect for five fiscal years, or as otherwise agreed and modified. Any party may initiate a modification to this document to incorporate any changes that are mutually agreed to by the participants. Such modifications shall be in writing and shall be comprehensive in the relevant details of the modification. The modification will take effect once documented and signed by the authorized signatories of each party.

- U.S. Forest Service (USFS)
- Bureau of Land Management (BLM)
- National Park Service (NPS)
- Bureau of Indian Affairs (BIA)
- U.S. Fish & Wildlife Service (FWS)
- National Interagency Fire Center (NIFC)
- Federal Emergency Management Agency (FEMA)
- National Infrared Operations (NIROPS)
- National Interagency Coordination Center (NICC)
- USFS Geospatial Technology and Applications Center (GTAC)
- National Association of State Foresters (NASF)

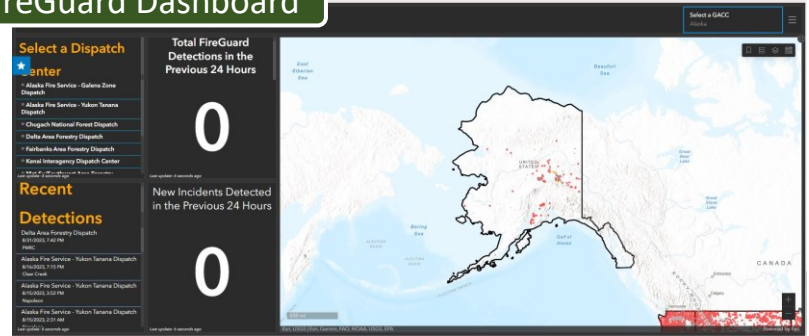


Aircraft 3 & FireGuard support diverse Federal, State, Local fire agencies and organizations

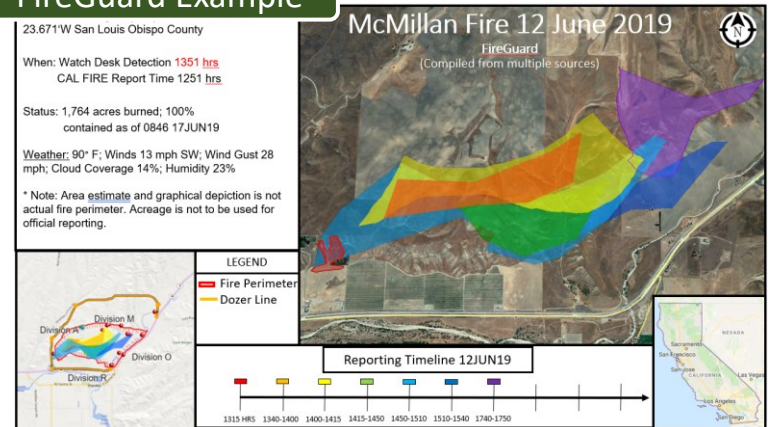
FireGuard Overview

- Persistent fire detection capability
 - National coverage including HI and AK
 - Provides 10 minute reporting interval
 - Available 24/7/365 – Always On
 - Supported by Defense Support to Civil Authority (DSCA)
- Derived from classified data source
 - Detections are reviewed by CO and CA National Guard
 - Manual review and interpretation
 - Disseminated at the Unclassified level
- Product description/details
 - Shows fire detections and spread
 - Not a tactical level product
 - Location +/- 100 meters (corrected by interpretation)

FireGuard Dashboard



FireGuard Example

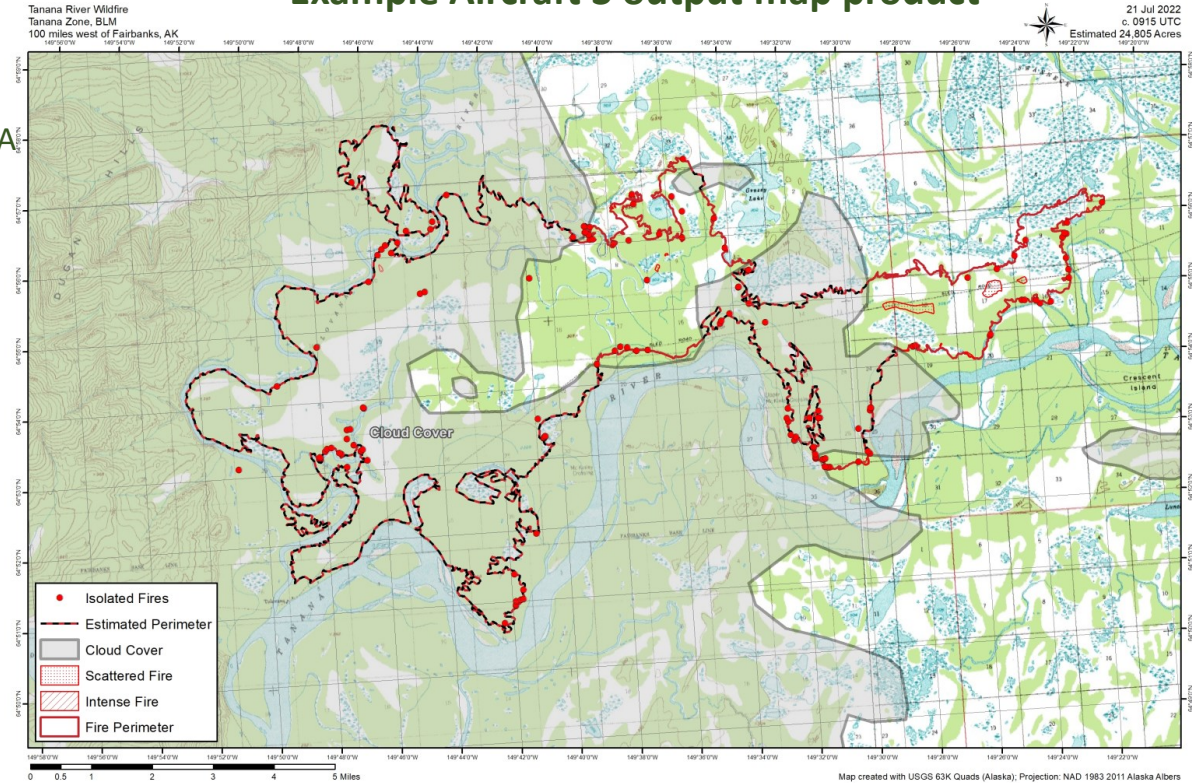


FireGuard provides near real time 24/7/365 rapid detect and notification for wildfires nationwide including HI and AK

Aircraft 3 Overview

- Wildland fire mapping product
 - Similar to NIROPS products
 - Produced jointly by USGS NCAC and NGA Office of Americas
 - Tasked daily by NIFC
- Utilizes classified data source
- Provides timely, critical, unclassified fire intelligence to Incident Command
 - Map Features:
 - Fire Perimeter
 - Intense Fire
 - Scattered Fire
 - Isolated Fire
 - Mapped to 5-10 meter accuracy
 - Delivered as:
 - Vectors - Shapefiles & KMZ's
 - PDF and JPEG Maps
 - ReadMe context report
- Data is collected, analyzed, products developed, and delivered by 04:00 Local

Example Aircraft 3 output map product



Tanana River Fire 21 July 2022



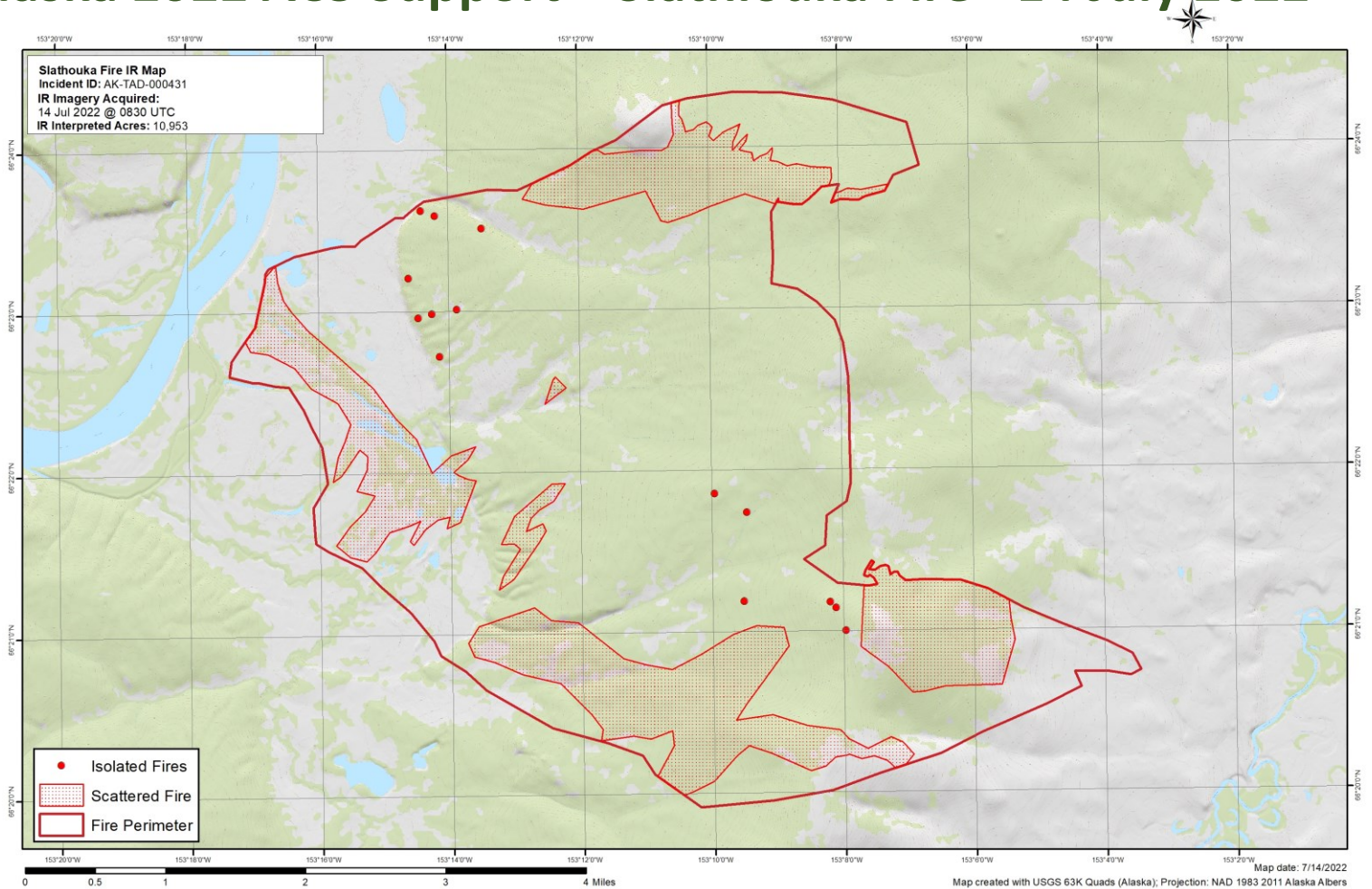
Aircraft 3 does not replace NIROPS or contract support. AC-3 fills coverage gaps; operates when aircraft are unavailable; covers geographic areas unsupported by aircraft operations such as Alaska, Hawaii, and Eastern US

Summary of 2022 & 2023 AC3 Support

2022	2023
First Request April 7 Last Request November 4	First Request June 5 Last Request Currently ongoing
<i>As of 10 Oct 2022</i> Named Fires – 48 Total Acres* – 6.7 mil Ac. Taskings – 411 States Supported – 7 AK, AZ, CA, NM, TX, WA, WY	<i>As of 10 Oct 2023</i> Named Fires – 48 Total Acres – 3.1 mil Ac. Taskings – 323 States Supported – 14 AZ, CA, CO, FL, HI, ID, LA, MT, NC, NM, OR, UT, WA, WY

*Total 2022 = 7,913,580 acres. 2022 fire year was much larger, but current year has unprecedented coverage, including HI – *no AK taskings for 2023*

Example Alaska 2022 AC3 Support – Slathlouka Fire - 14 July 2022





Questions?

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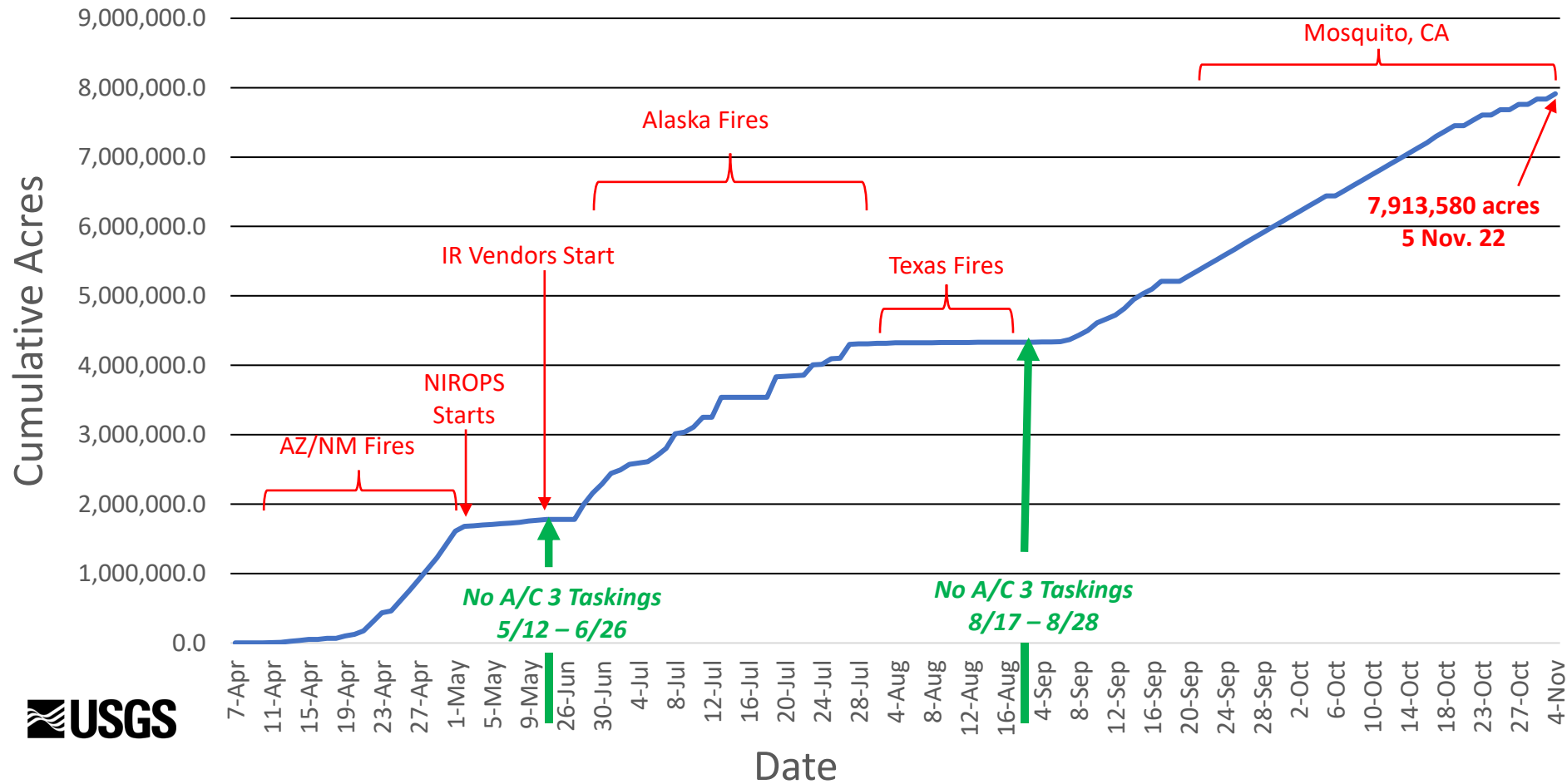
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Backup Slides

Total 2022 AC 3 Cumulative Acres Mapped





Use and Application of Geospatial Data, Forestry, Hazards, Emergency Response, Mitigation, Data Sharing

The USGS National Civil Applications Center supports joint DoD and Federal civil fire mapping efforts using restricted remotely sensed data to produce operationally relevant unclassified data in two spatial and temporal resolutions for wildland firefighting efforts across the US, including Alaska. Tactical level fire line data is produced for selected incidents, as determined by the National Interagency Fire Center (NIFC) - this product is variously known as Aircraft 3 (AC3) or Firehawk and maps fire at about a 5-meter spatial resolution and is delivered once per day. Higher temporal resolution needs are satisfied by a different program, FireGuard, which provides early warning fire detects and tracks fire spread.

These two products complement other wildfire detection and mapping efforts including the use of VIIRS, GOES, aircraft-based collection, and others. For example, AC3 is tasked by NIFC to provide gap coverage when contract aircraft are not available.

Peter and Crystal will present recent output products from AC3 and FireGuard for specific incidents in Alaska and discuss current efforts for automation and cross-sensor validation.

