NAAMES Mission C-130 Flight Report

From: CYYT **To: CYYT**
Start: 11/17/15 10:00Z **Finish: 11/17/15 18:50Z**
Flight Time: 8.8 hours
Log Number: 161006 **PI: Mike Behrenfeld**
Funding Source: Paula Bontempi - NASA - SMD - ESD Ocean Biology and Biogeochemistry

Official Report Logged At:
https://airbornescience.nasa.gov/science_reports/NAAMES_-_C-130H_Hercules_439_11_17_15_Science_Report
https://airbornescience.nasa.gov/flight_reports/C-130H_Hercules_439_11_17_15

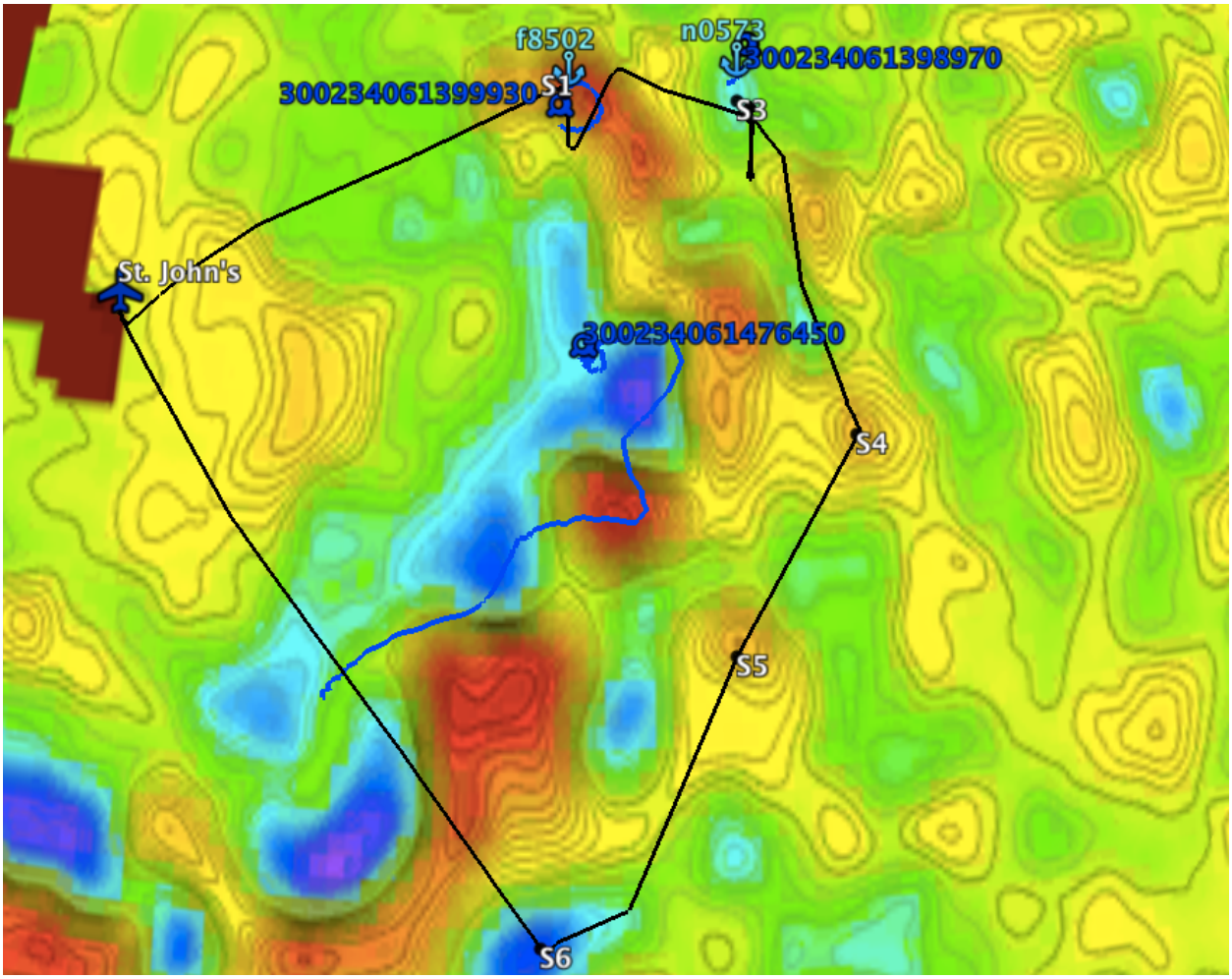
Flight Hour Summary:

161006 Flight Reports					
Date	**Flt #**	**Purpose of Flight**	**Duration**	**Running Total**	**Hours Remaining**
10/31/15	Airworthiness Test Flight	Check	1	1	99
11/04/15	Project Test Flight	Check	5.5	6.5	93.5
11/09/15 - 11/10/15	NAAMES Nov-2015 Transit	Transit	4.6	11.1	88.9
11/12/15	NAAMES Nov-2015 Data Flight #1	Science	9.9	21	79
11/14/15	NAAMES Nov-2015 Data Flight #2	Science	9.7	30.7	69.3
11/17/15	NAAMES Nov-2015 Data Flight #3	Science	8.8	39.5	60.5

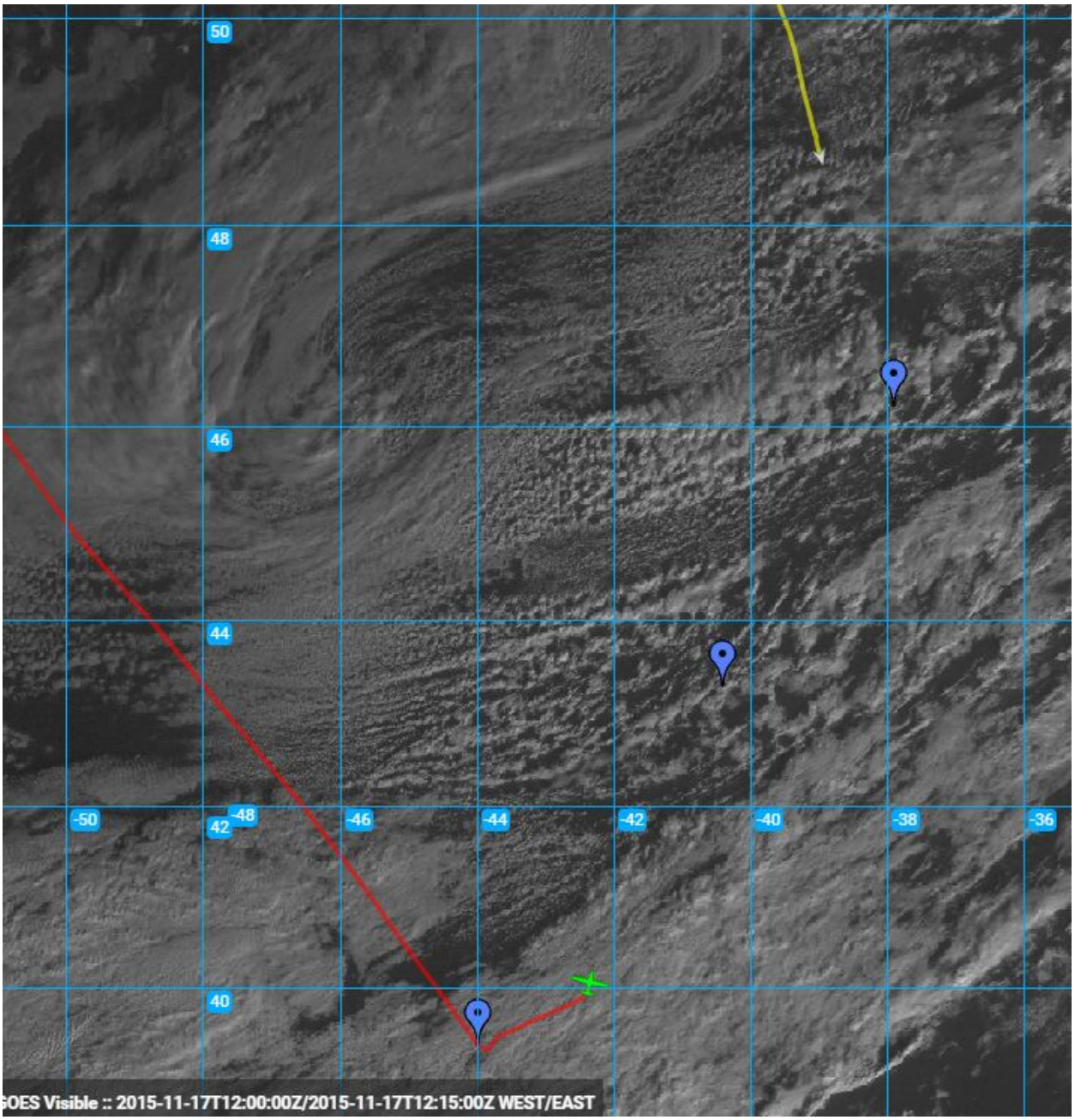
NOTE THAT SHIP STATIONS S5 AND S6 HAVE CHANGED AFTER THIS FLIGHT WAS COMPLETED. PLEASE SEE FUTURE FLIGHT REPORTS FOR NEW STATION LOCATIONS.

Comments: This was the third science flight for NAAMES with the goal of completing a high-altitude ocean remote sensing survey around the south end of the future ship track and an aerosol-cloud sampling module around Point S3. No ship station was carried out today as the ship was in transit to Point S4. The decision to depart Point S3 for Point S4 yesterday was due to rough seas in and around S3. The C-130 transited to Point S6 and encountered extensive breaks in the cloud cover, which allowed for good ocean remote sensing data on the way down; although, S6 itself was fully covered with cloud. The aircraft encountered much better, scattered-to-broken cloud conditions with large clearings around and between Points S5 and S4 and on the way to Point S3. The cloud forecast had shown the entire south end of the track to have a relatively low cloud fraction, and while the general, large-scale features of the forecast proved to be accurate, the constant presence of small clouds in the area was evident. Clouds encountered during cloud module maneuvers around Point S3 were broken with discernable precipitation. Vertical winds calibration maneuvers were completed on the transit legs at 21,000 ft.,

with no pitch maneuvers on the outbound leg and pitch maneuvers on the return leg. An attempted ocean remote sensing run was completed along the solar principal plane at Point S1; however, the overcast cloud coverage prevented good data from being obtained. The LARGE Cloud Imaging Probe continues to be impacted by moisture condensation on the optical windows that degrades the photodiode sensitivity resulting in a loss of drizzle measurement; although, the Cloud Droplet Probe and Cloud-Aerosol Spectrometer continue to operate well. No data were collected by PTR-MS during this flight due to a failed turbopump early on in the flight. The pump was replaced post-flight and the instrument is ready to fly tomorrow. All other instruments are fully operational.



C-130 flight track (black) overlaid on the sea level anomaly (SLA) eddy map. Float (light blue anchors) and drifter (dark blue circles) positions and IDs are also shown. The ship is currently enroute from Point S3 to Point S4. Eddy map courtesy of Peter Gaube.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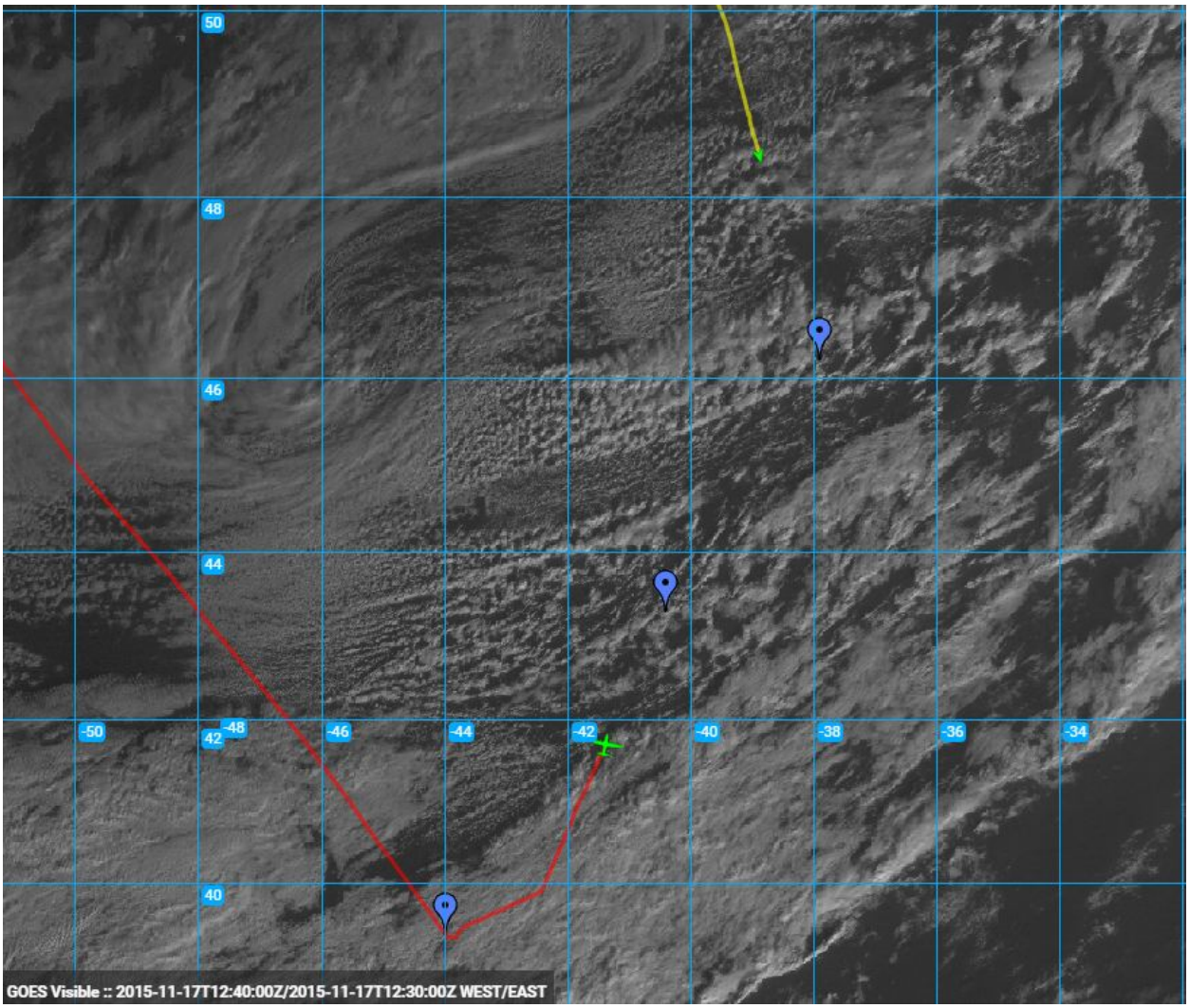
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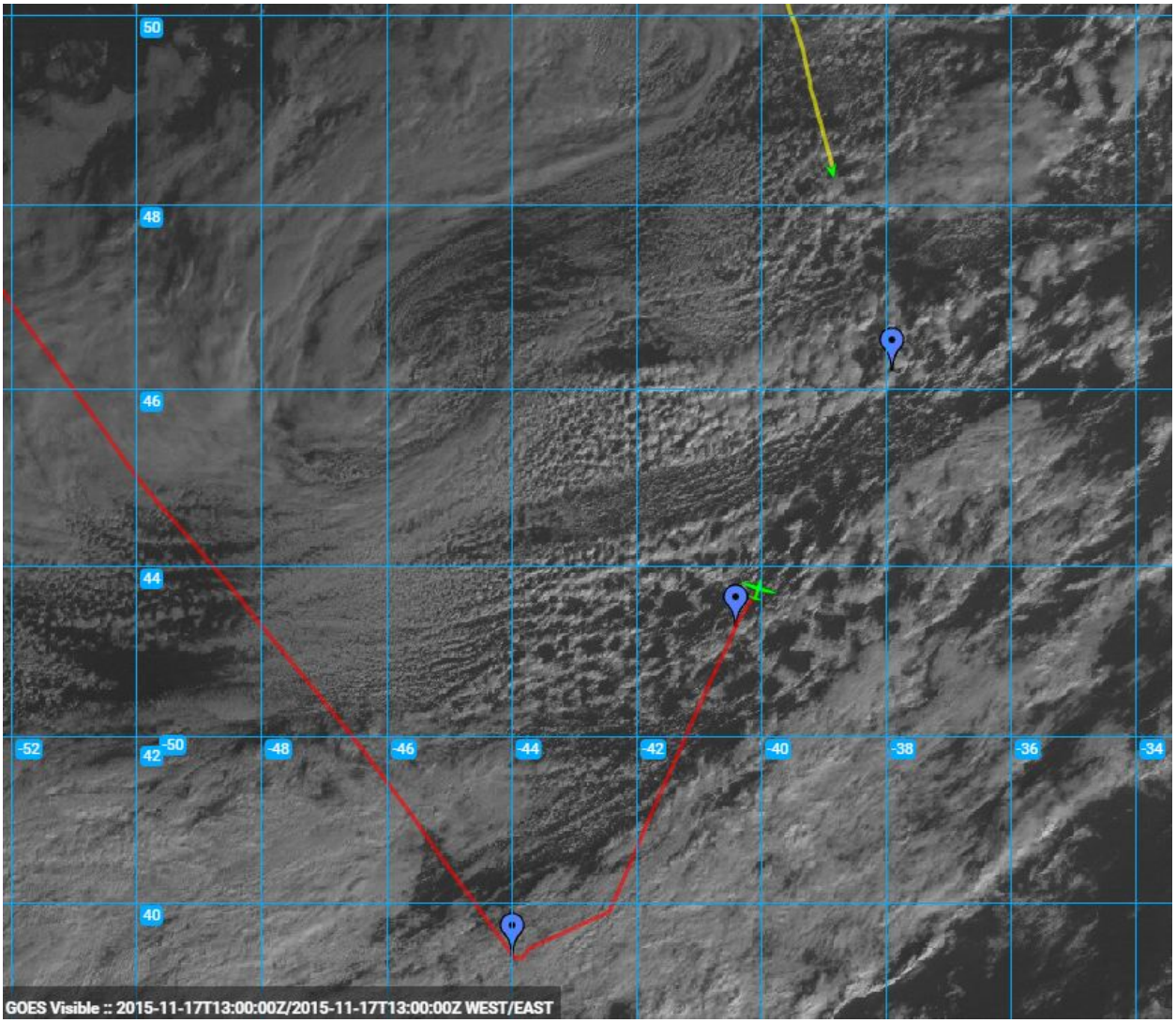
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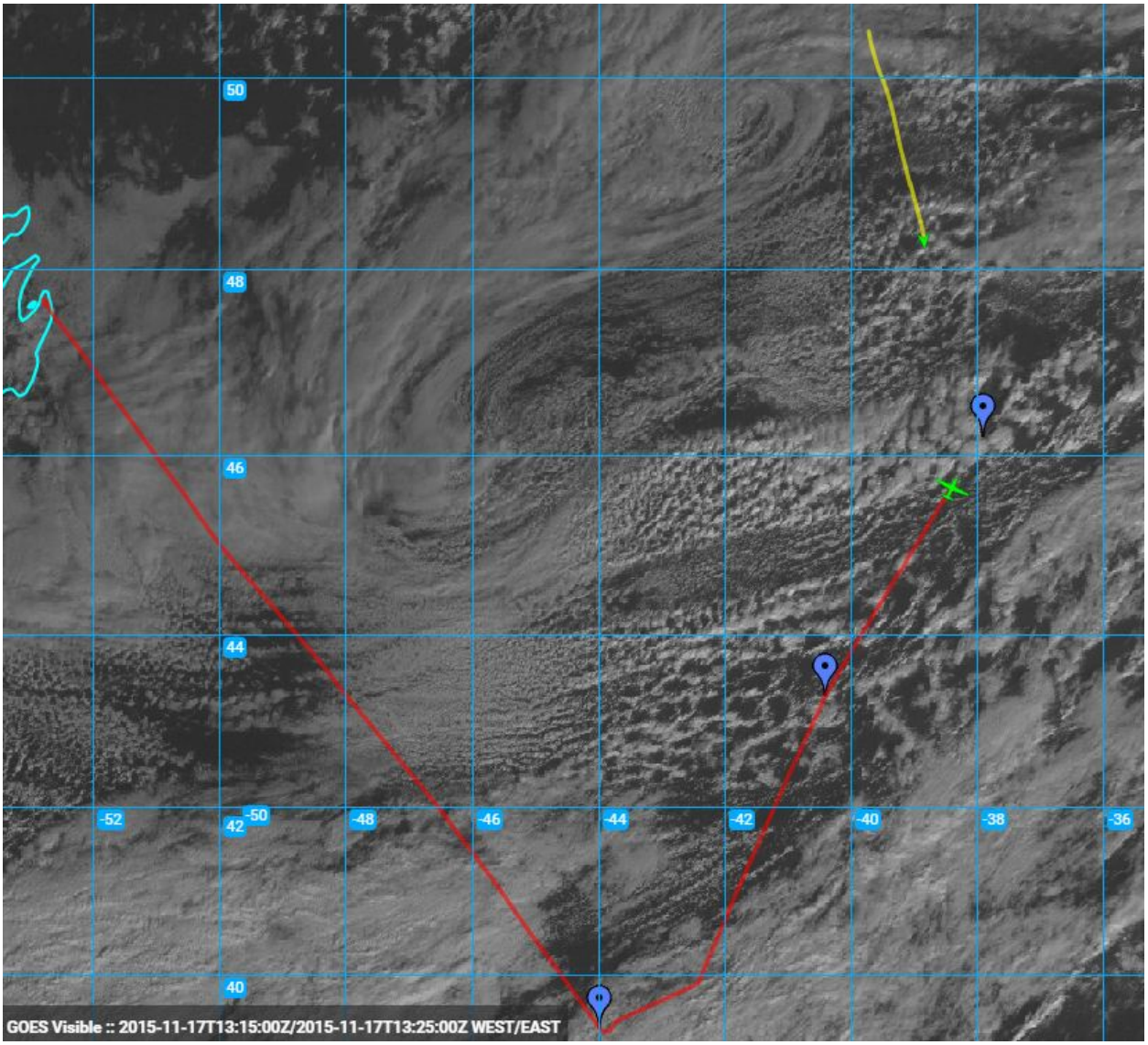
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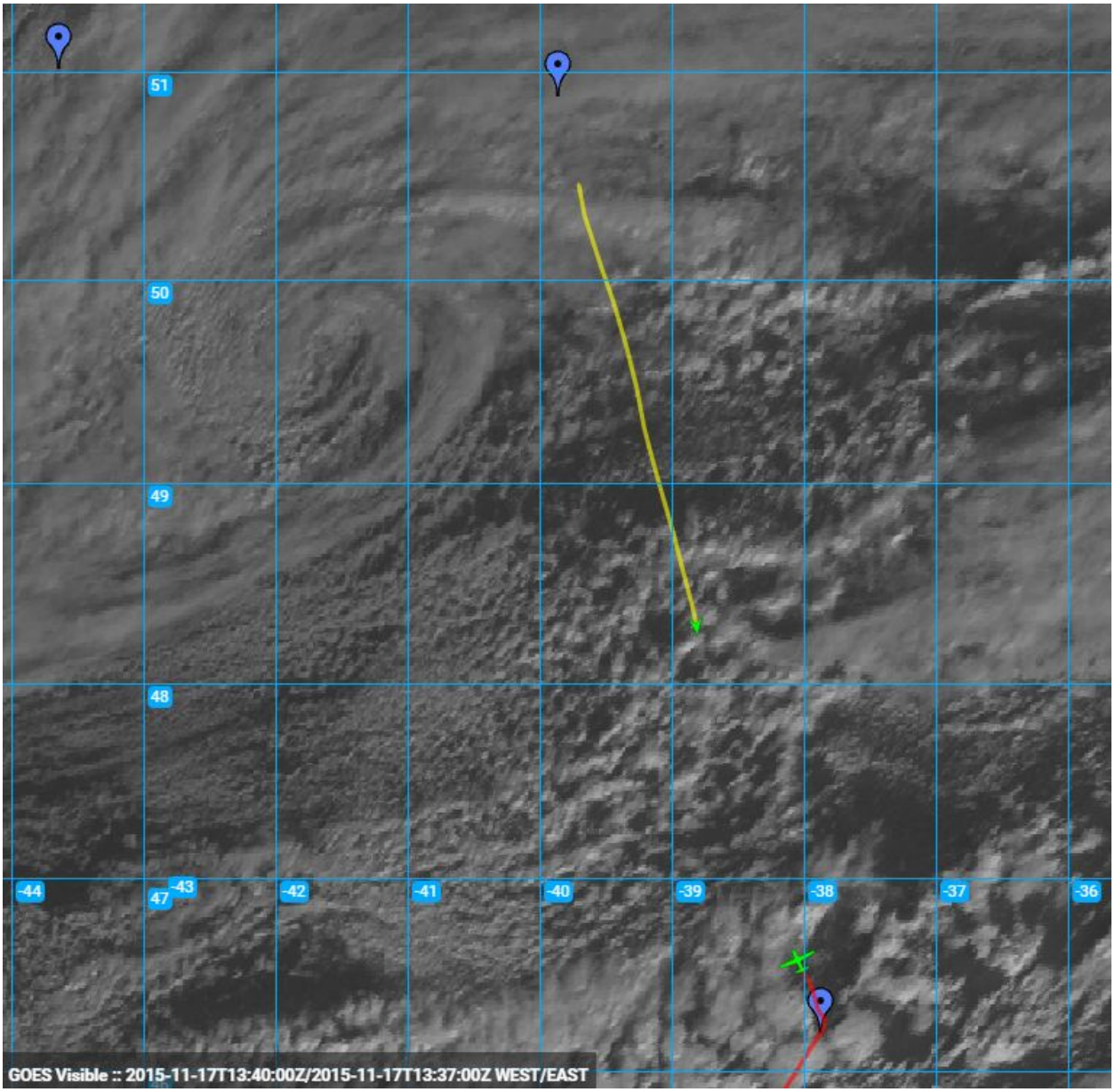
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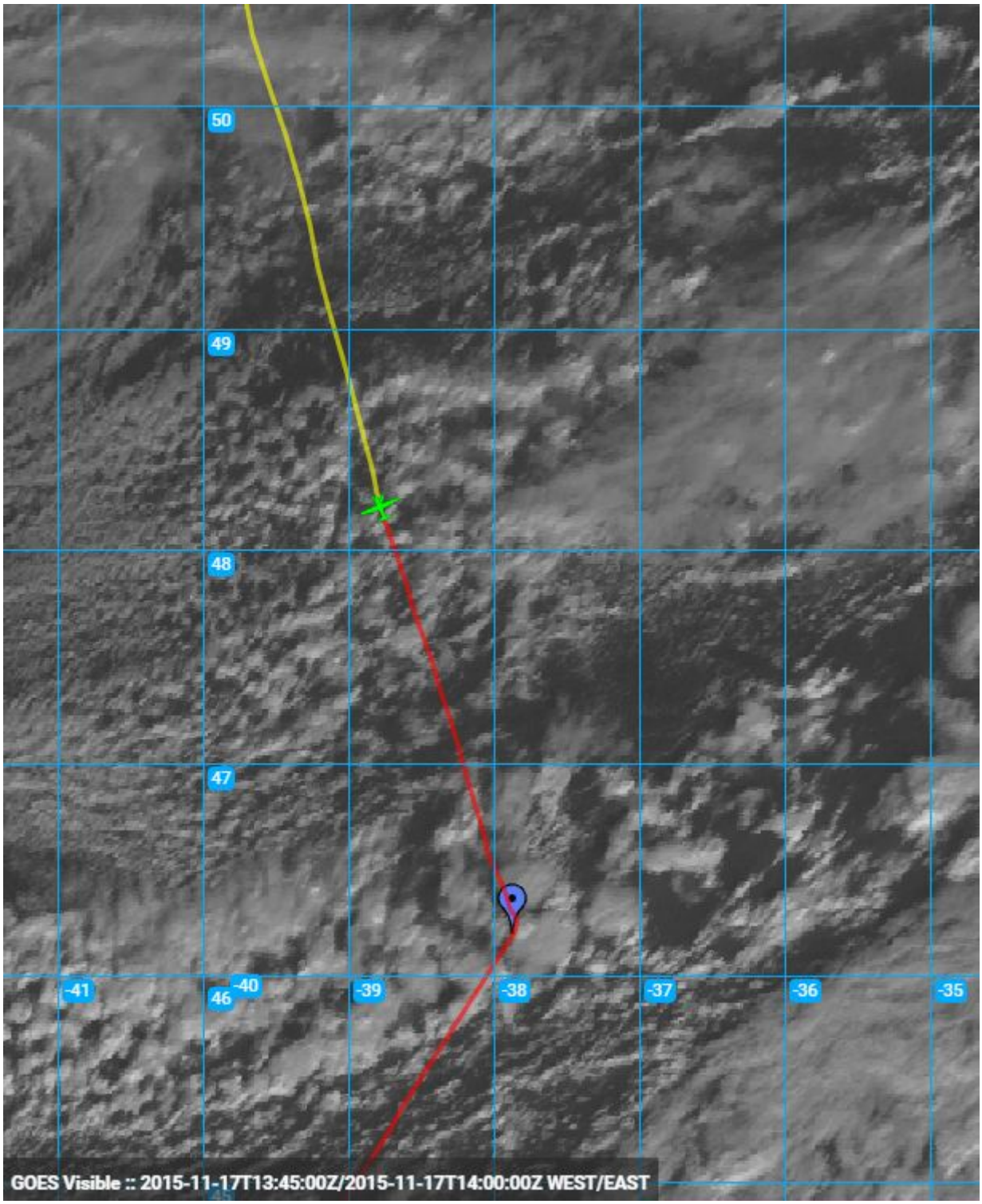
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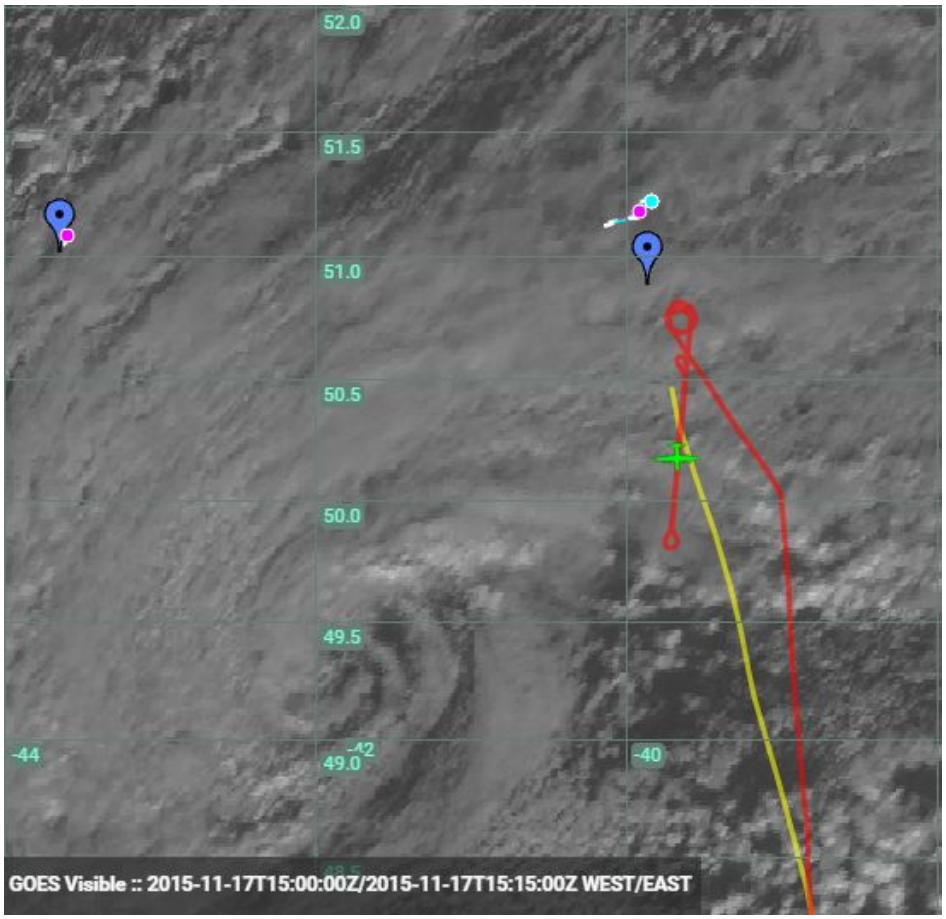
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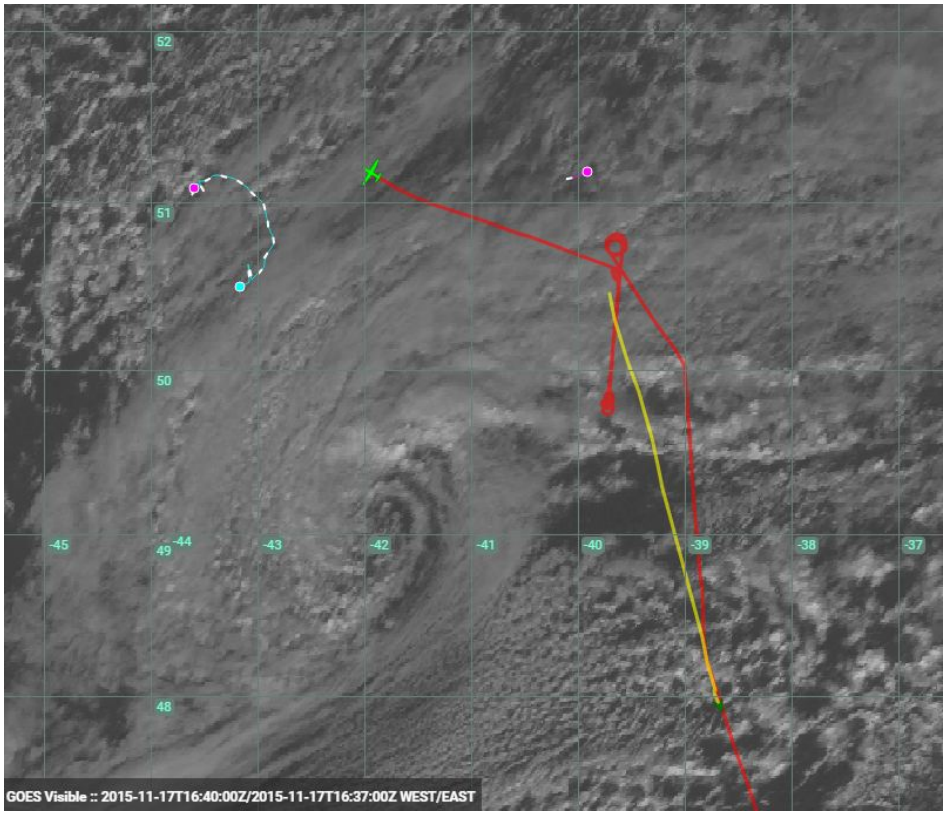
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