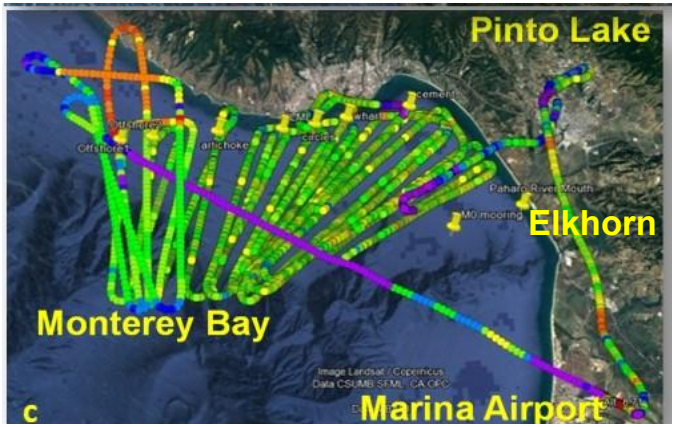
NPS-CIRPAS Airborne Research Facility

SCOAR Meeting Update – 4Oct2022

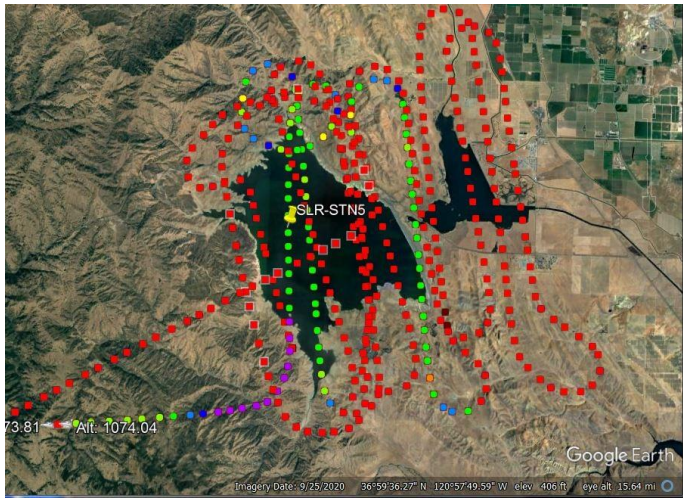
Anthony Bucholtz

FY22 Twin Otter Missions
C-HARRIER

- **C-HARRIER:** (October 2021 - 1 week)
  - **PI:** Liane Guild, NASA Ames
  - **Location:** Marina, CA
  - **Goal:** Measure coastal and inland water radiance for satellite validation over relevant aquatic targets – supports coastal and inland water quality science
  - **Sponsor:** NASA
  - **Sensors:** C-AIR, 19-channel radiometers
  - **Collaborators:** DART Boston Whaler, UCSC
- **3 Science Flights:**
  - **27Oct 2021:** Pinto Lake, Elkhorn Slough, Monterey Bay
  - **28Oct 2021:** Elkhorn Slough, Monterey Bay, coordinated with S-MODE project
  - **29Oct 2021:** San Luis Reservoir
- **Highlights:**
- Captured first flush rain event (atmospheric river) for watersheds out to Monterey Bay
- Drought stricken San Luis Reservoir with a cynobacteria bloom



Nominal flight patterns – Monterey Bay



Flight pattern over San Luis Reservoir

FY22 Twin Otter Missions

CALICO (California Investigation of Convection over Ocean)

- **CALICO:** (14 Feb – 23 Mar 2022 - 6 weeks)
  - **PI:** Scott Powell, Naval Postgraduate School
  - **Location:** Marina, CA
  - **Goal:** Study of post-frontal convection and interactions with the boundary layer
  - **Sponsor:** ONR
  - **Sensors:** Twin Otter facility sensors: meteorology and cloud/aerosol probes
  - **Collaborators:** SJSU and NRL cloud radars

Forward camera image of typical post frontal convection sampled

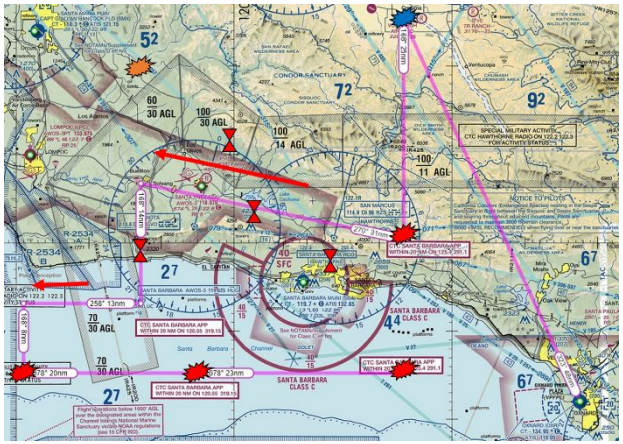
- **6 Science Flights:**
  - **21 Feb 2022:** Test flight, calibration maneuvers, Monterey Bay
  - **22 Feb and 5 Mar 2022:** Two science flights each day, morning and afternoon over Monterey Bay
  - **19 Mar 2022:** Off the coast of northern CA between Crescent City and Santa Rosa

Sampling near the bottom of a convective cell with rain appearing on windshield.

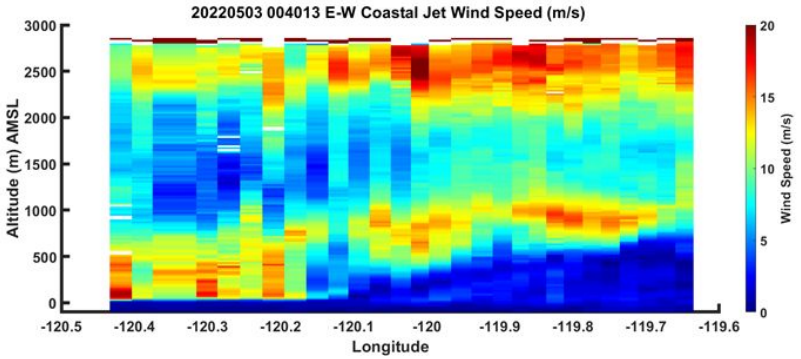
- **Highlights:**
- Captured met (T, P, RH, winds) and cloud properties of numerous post-frontal convective cells.

FY22 Twin Otter Missions
SWEX (Sundowner Winds Experiment)

- **SWEX:** (1 April – 15 May 2022 - 6 weeks)
  - **PI:** Leila M. V. Carvalho, UC-Santa Barbara
  - **Location:** Santa Barbara, CA
  - **Goal:** Study the downslope windstorms that frequently occur in the region in the spring that are a significant cause of wildfires in the area.
  - **Sponsor:** National Science Foundation
  - **Sensors:** Twin Otter Doppler Wind Lidar (TODWL), Wyoming Cloud Lidar (WCL), CU Compact Raman Lidar (CRL), NCAR AVAPS dropsonde system.
- **29 Science Flights (96 flight hours):**
  - **Two flights per day:** Afternoon flight before the start of a sundowner event, followed by a night flight after the start of a sundowner
- **Highlights:**
- Captured the wind and thermodynamic profiles of numerous sundowner events and background conditions
- Tested new TODWL observing techniques to measure winds near the surface



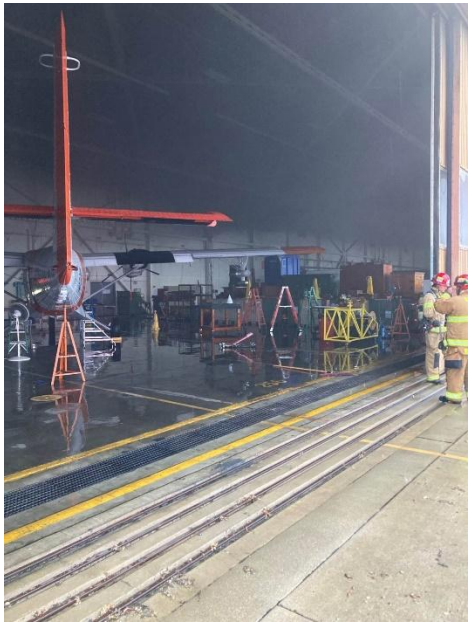
Nominal flight pattern – Santa Barbara area



TODWL wind measurements: Illustrates how the NE down slope flow from land to water is undercutting and lifting the low level jet over the Santa Barbara Channel (courtesy of D. Emmitt)

Fire Incident
Hangar Facility - Marina Airport, CA

- **4 Aug 2022 (early morning hours):**
  - Fire occurred on the **other side** of our hangar occupied by Joby Aviation, a private company
  - No injuries
  - No fire damage to the aircraft, or to our side of hangar
  - Fire set off our fire suppression deluge system flooding the hangar deck area and drenching the aircraft and equipment on the floor.
  - Smoke filled the entire building, covering everything with a layer of smoke and soot.
- **Water/Smoke Damage:**
  - Aircraft itself suffered little water damage – exterior covered by wet soot
  - Smoke infiltrated into the interior of the aircraft
- **Recovery Actions:**
- Still assessing full extent of effects on aircraft
- Working with aircraft, engines and avionics manufacturers, in coordination with NAVAIR, to determine needed tests, inspections, cleanings, etc
- Exterior, and sections of the interior of the aircraft have been cleaned.
- E**ngines have checked out okay!**



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Questions?