



## **CIRPAS**

**The Center for Interdisciplinary Remotely-Piloted Aircraft Studies (CIRPAS) provides Manned and Unmanned Air Vehicle flight services to the scientific and engineering communities.**

**CIRPAS became an University National Oceanographic Laboratory System (UNOLS) National Facility on 27 September 2002**



# THE AIRCRAFT FLEET



**UV 18-A Twin Otter**



**Pelican (2)**



**Predator (3)**



# FACILITIES:

- **Marina Facility**

3500 ft runway - manned operations only

30,000 sq ft maintenance hangar

Instrumentation and Calibration Laboratory

Maintenance and Payload integration shops

Offices





# CIRPAS FACILITIES:

- **Camp Roberts Facility**

Friendly airspace for UAV testing and training (R2503).

Military ground maneuvers (equipment, personnel)

3500 x 60 ft runway

2000 sq ft hangar

Office Space





# Research Aircraft: Twin Otter







# Twin Otter: Facility Payload



- **Nose:**
  - Temperature
  - Dew Point
  - Pressure
    - Static
    - Dynamic
  - Sideslip
  - Attack angle
  - GPS/INS
  - IR Temperature
  - Liquid Water Content
  - Aerosol Inlet



# Twin Otter: Facility Payload

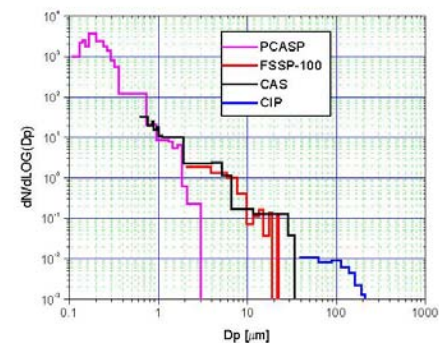
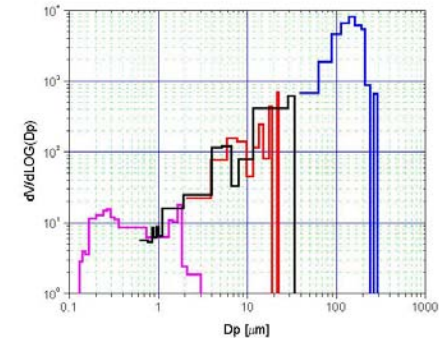
Wings: CAPS, FSSP, PCASP, CIP, PIP, APS

Hard points and pods for 'research' or 'guest' instruments



Aerosol and Cloud  
Spectrometers

Light Drizzle BL





# Twin Otter: Facility Payload

Cabin: Nephelometer, Sootphotometer, CPCs, UFCPC, Data System  
Racks for 'Research' and 'Guest' Instruments.

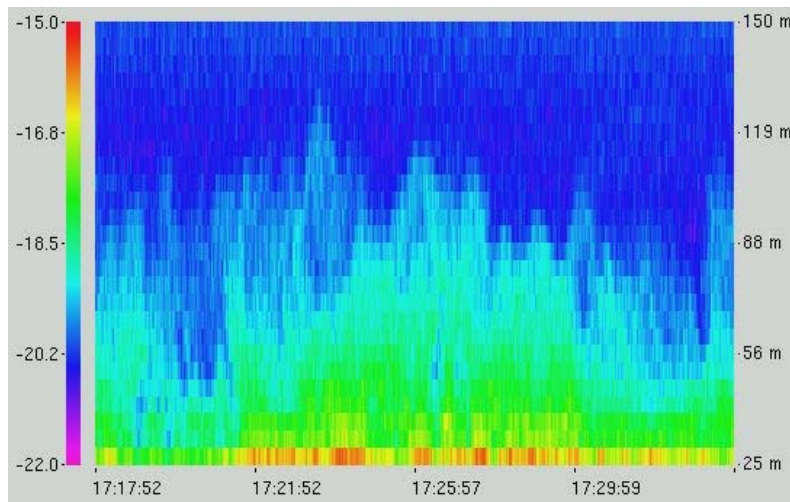




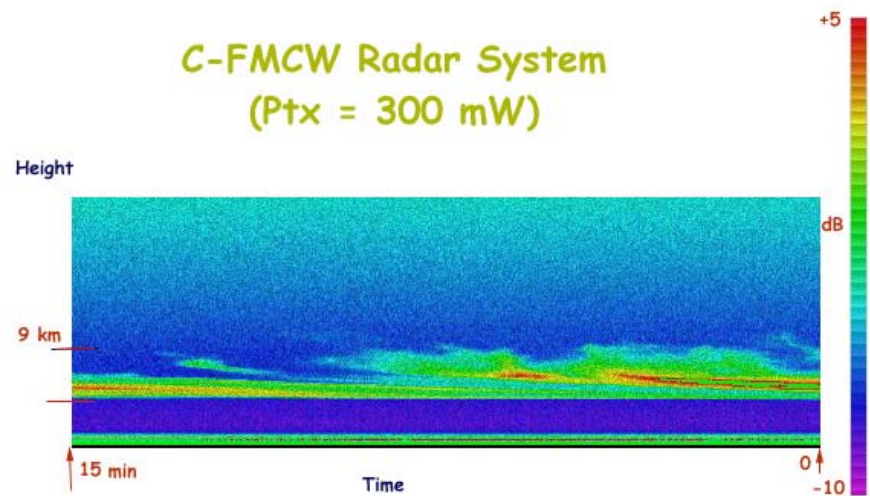


# CIRPAS SCIENTIFIC INSTRUMENTATION

## 95 GHz Cloud Radar



C-FMCW Radar System  
( $P_{tx} = 300 \text{ mW}$ )





# CIRPAS Research Instrument Example Wind Lidar



TODWL two axis scanner





## CIRPAS Research Instrument Example Smart Towed Vehicle

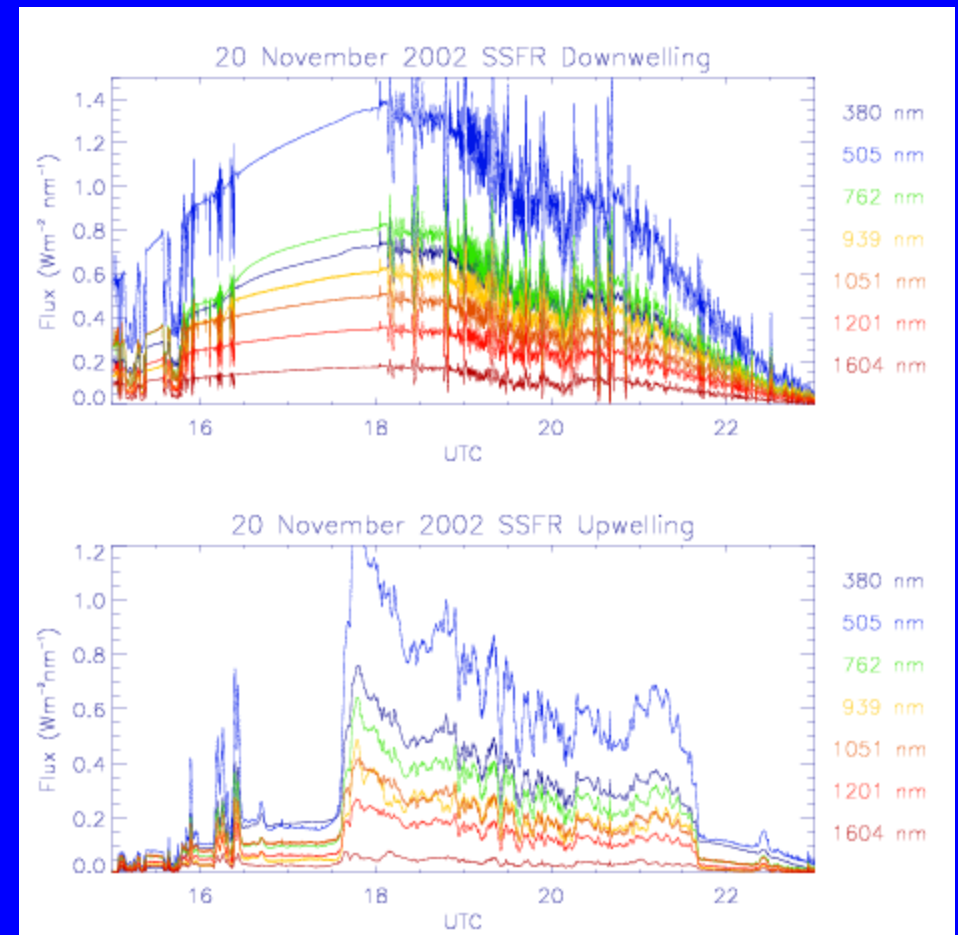






# NEW INSTRUMENTATION

## Stabilized Radiometer Platform

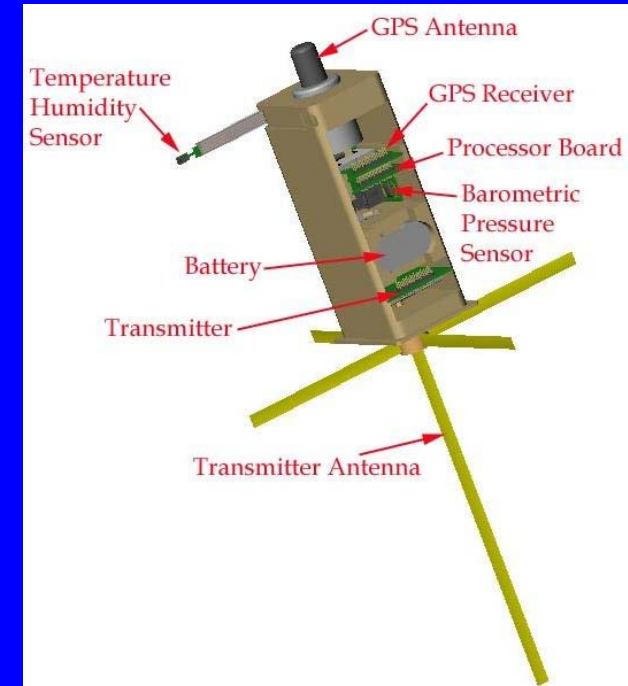






# NEW INSTRUMENTATION

## MICRO-SIZED AIR-LAUNCHED EXPENDABLE METEOROLOGICAL SENSOR & CHAFF





# NEW INSTRUMENTATION

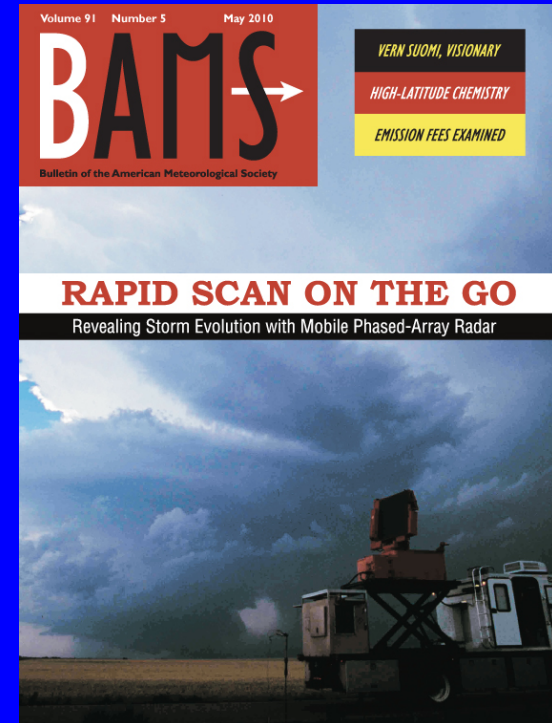




# GROUND BASED ASSETS

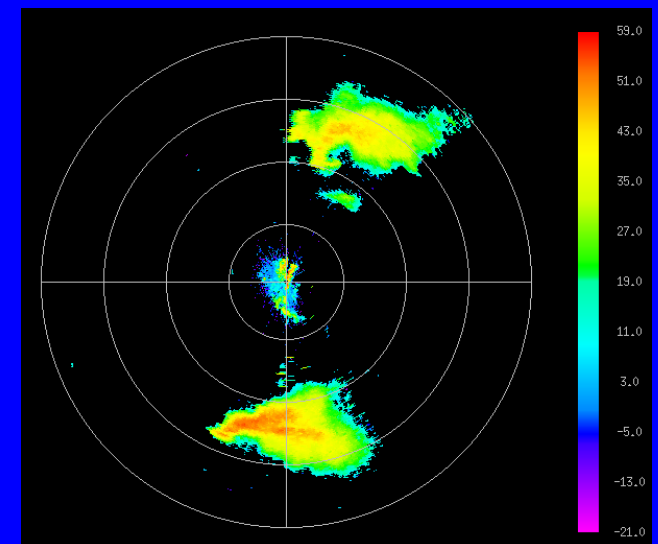


**MWR-05X Mobile Storm  
Radar**





## MWR-05X Mobile Storm Radar







# Pelican Predator Surrogate





# Pelican Predator Surrogate

Modified Cessna 337/O2

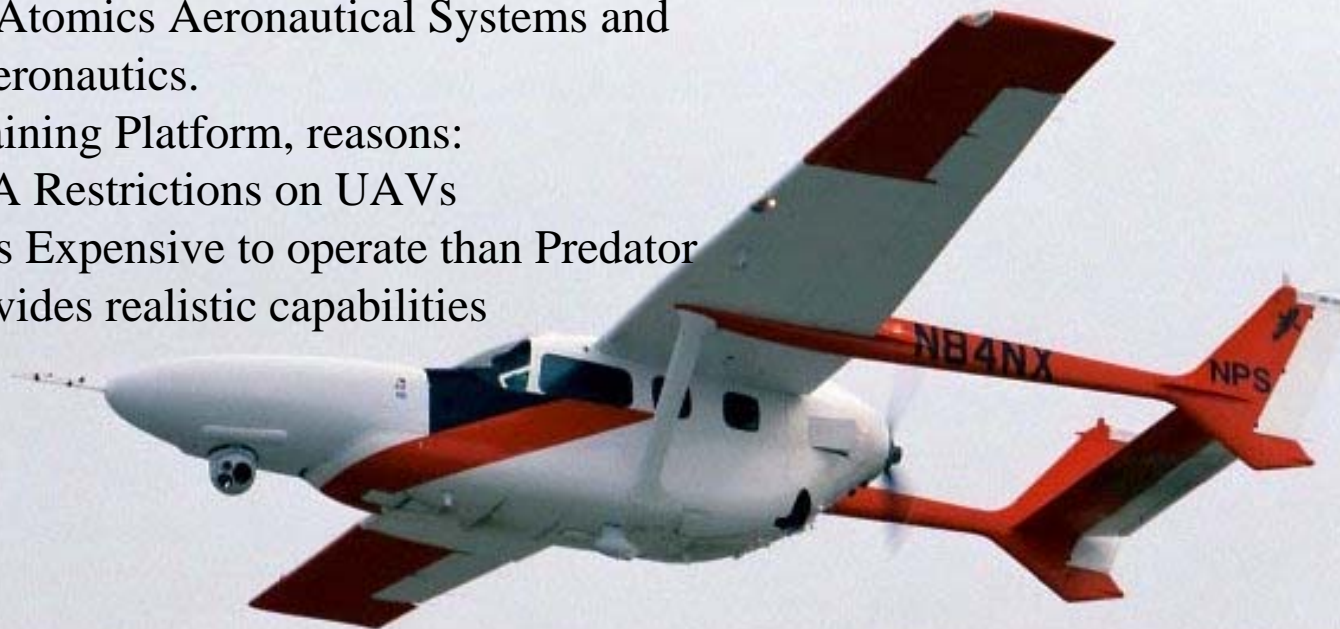
Configured as a true Predator Surrogate by  
General Atomics Aeronautical Systems and  
Zivko Aeronautics.

Ideal Training Platform, reasons:

- FAA Restrictions on UAVs

- Less Expensive to operate than Predator

- Provides realistic capabilities





# Pelican Predator Surrogate Mobile GCS



Pelican enhances training by providing an asset not readily available to the unit.



Joint VMU Shadow – Predator  
(Pelican) Operations at MAWTS WTI  
2-09.