



NOAA Unmanned Aircraft Systems Program Overview

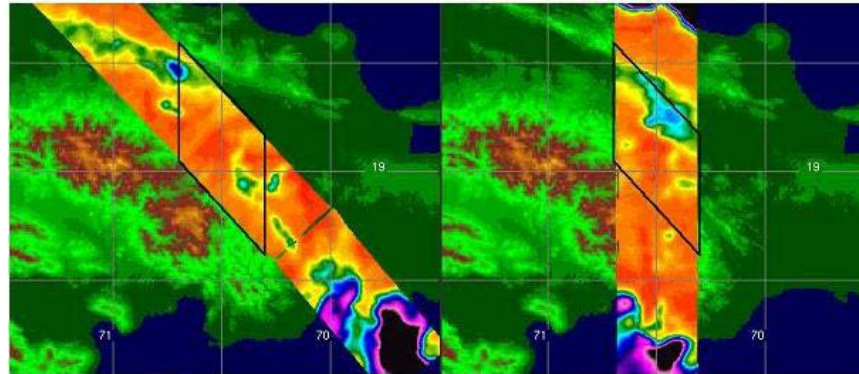
**Robbie Hood, UAS Program Director
NOAA Office of Oceanic and Atmospheric Research
22 February 2012**



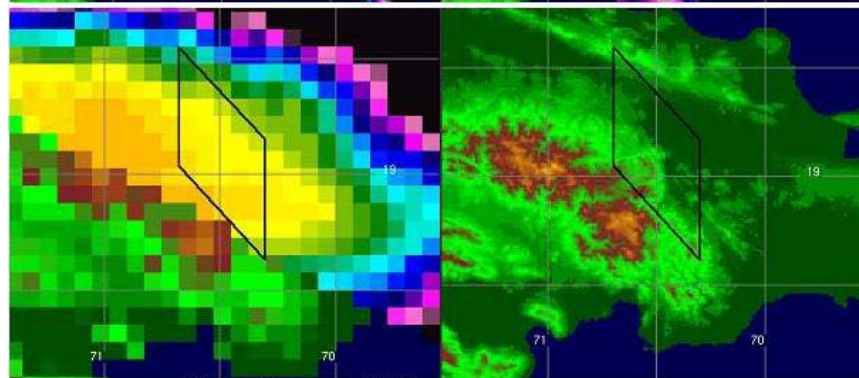
10 GHz Passive Microwave Observations of 1998 Hurricane Georges Flooding in Dominican Republic



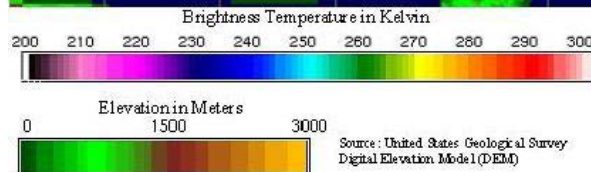
**10.7 GHz aircraft
overpass on 22
Sept 1998 near
2000 UTC
(heading SE)**



**10.7 GHz aircraft
overpass near
2220 UTC the
same day
(heading N)**



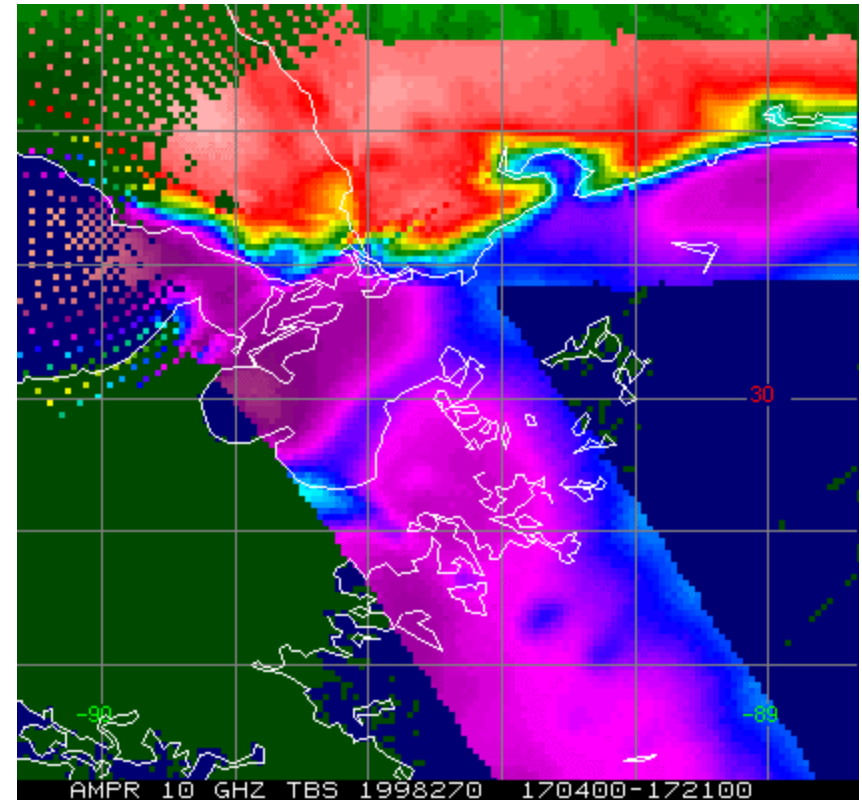
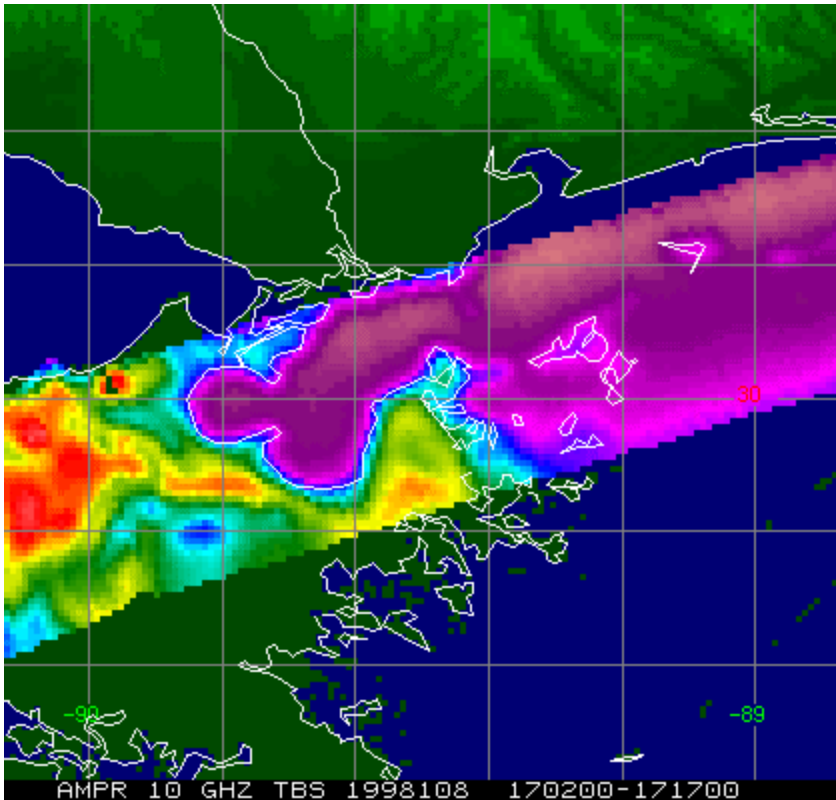
**10.7GHz satellite
overpass on 23
Sept 1998 near
0200 UTC**



**Land surface
elevation from
USGS Digital
Elevation Model**



10 GHz Passive Microwave Observations Before and After 1998 Hurricane Georges Storm Surge in Louisiana



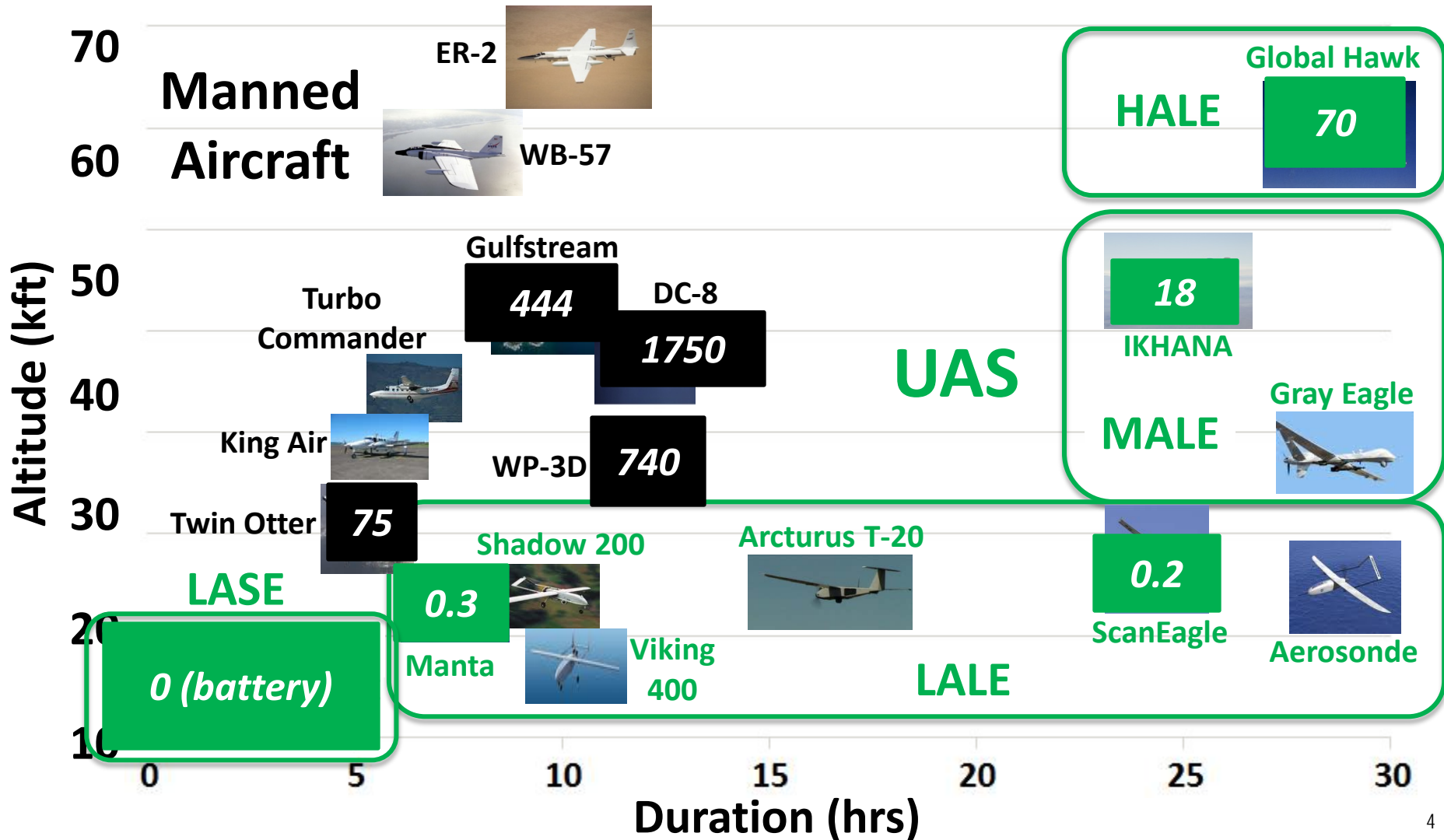
Advanced Microwave Precipitation Radiometer 10.7 GHz images of the Louisiana Delta from 18 April 1998 under dry conditions (left) and 27 Sept 1998 under wet conditions (right)



NOAA and NASA Manned and Unmanned Flight Capabilities

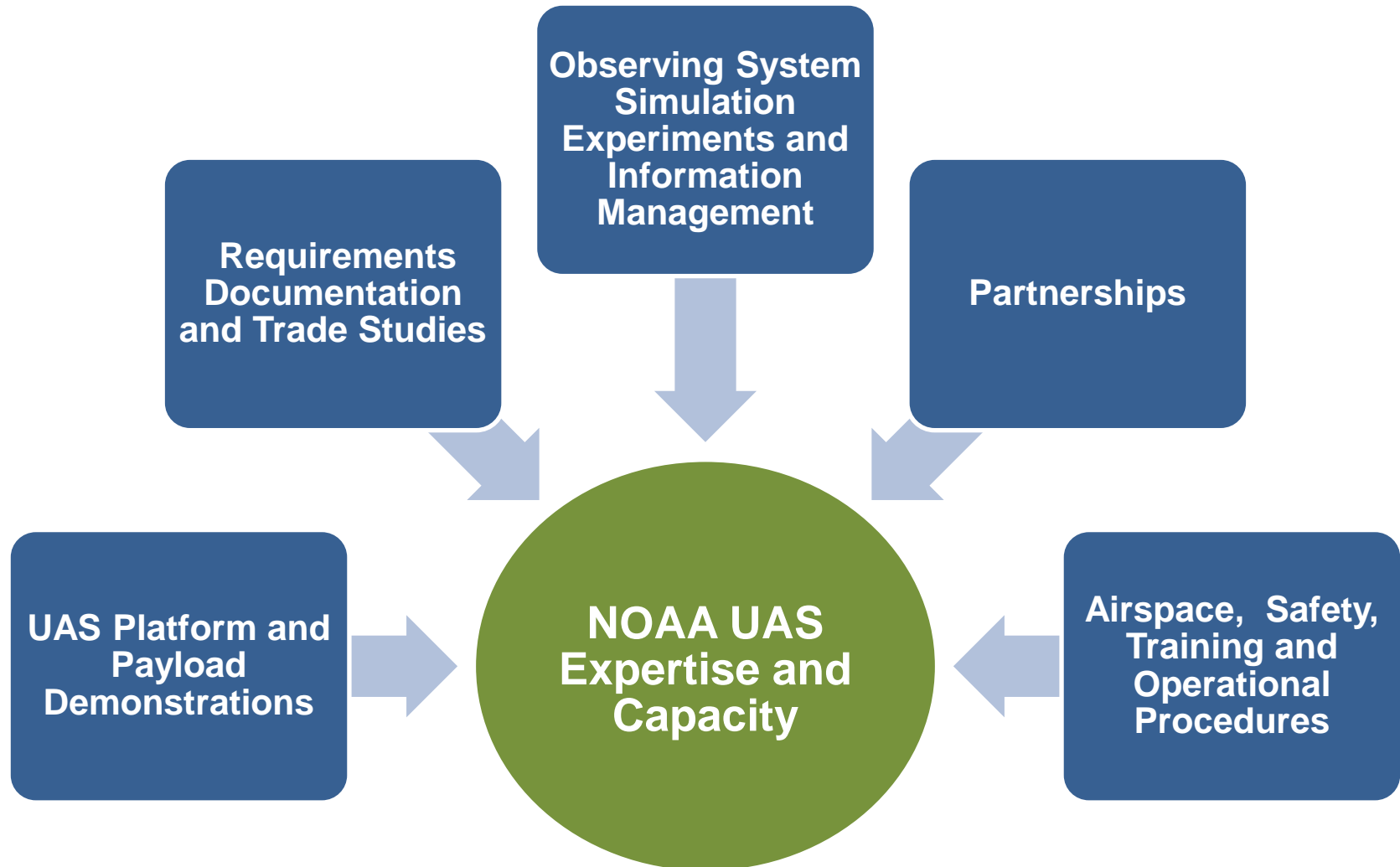


Fuel consumption (gph) for nominal mission





Tools for Building UAS Expertise and Capacity





NOAA UAS Strategic Vision and Goals



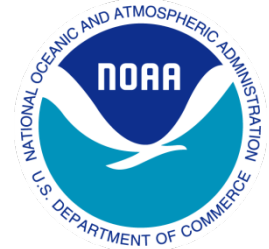
- ***Vision***

- UAS will revolutionize NOAA observing strategies by 2014 comparable to the introduction of satellite and radar assets decades earlier

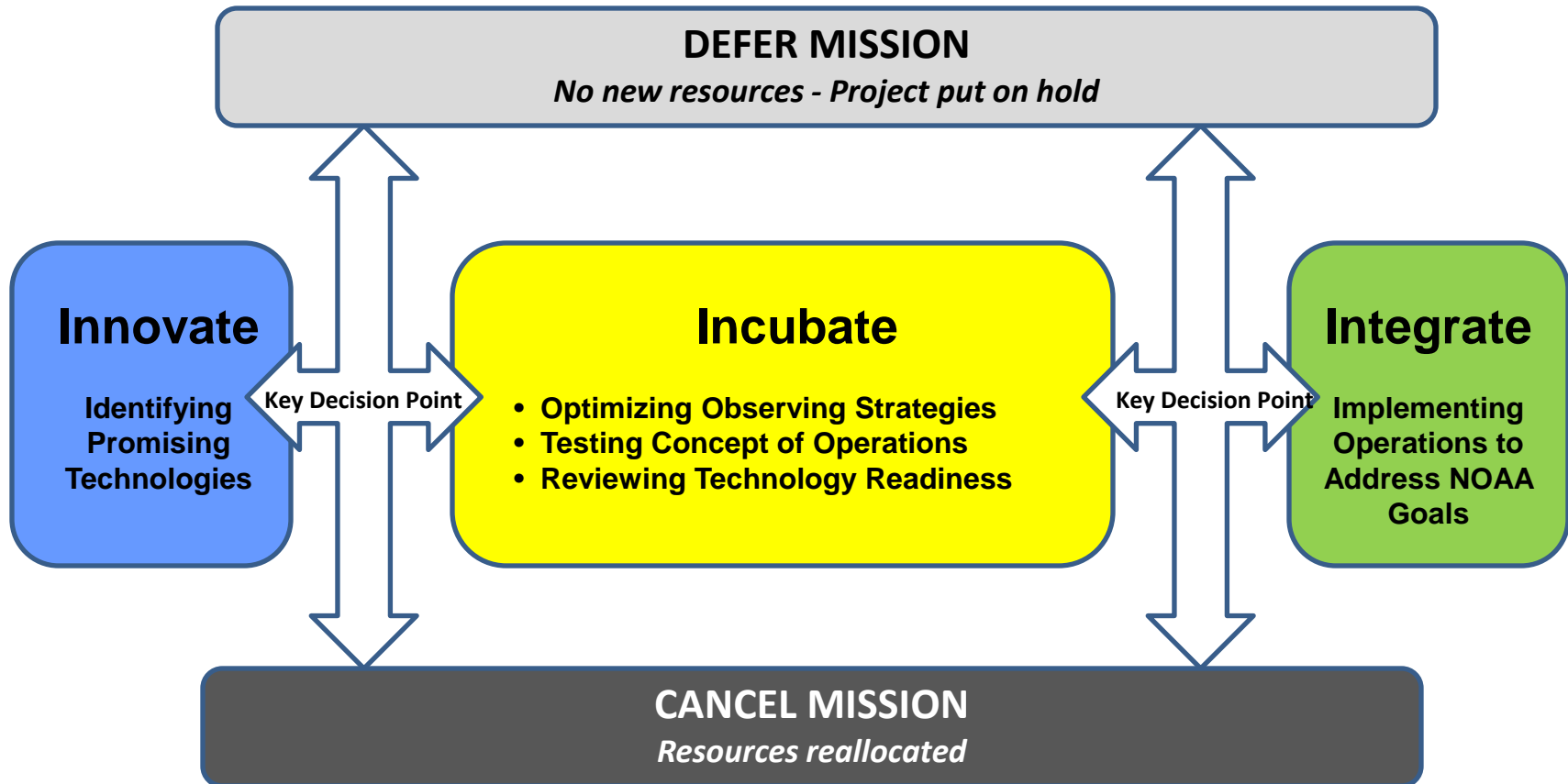
- ***Goals***

- Goal 1: Increase UAS observing capacity
- Goal 2: Develop high science-return UAS missions
 - ***High impact weather monitoring,***
 - ***Polar monitoring***
 - ***Marine monitoring***
- Goal 3: Transition cost-effective, operationally feasible UAS solutions into routine operations



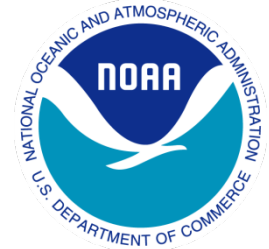


UAS Transition Process





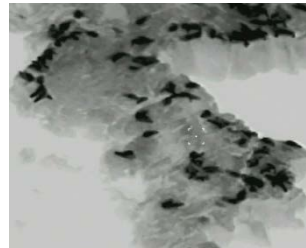
Roadmap for Low Altitude Marine and Wildlife Monitoring



NOAA UAS ship-deployed study of ice seals in Bering Sea



University of Alaska - Fairbanks UAS partnership study of seals at Dutch Harbor



Optimized UAS marine and wildlife observing strategy



2009

2010

2011

2012

2013

2014

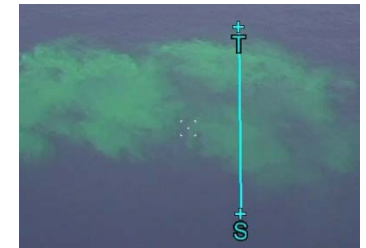
2015



NOAA UAS penguin study in Antarctica



Coast Guard UAS partnership study of oil spill monitoring in Santa Barbara channel

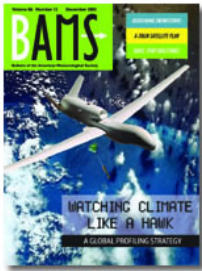




Roadmap for Global Capabilities UAS



Vision of Global Profiling System



NASA-NOAA Global Hawks and payloads feasible for dedicated operational high impact weather and polar monitoring



2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015

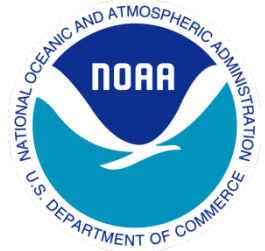
Proven Global Hawk flight capabilities

- Arctic, Pacific, Gulf of Mexico, Atlantic
- Tropical and winter storms
- Dropsonde and remote sensing profiling
- Aircraft *in situ* profiling





Contact Information



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