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In Brief ...

Global Hawk update

Preparations continue for an initial test flight in mid April. Global Hawk aircraft 872 is in final check-out and ground station flight software is loaded. The new communication system is being exercised and crew training is in progress.

GFRC supports new sensor test flights

The Glen Lear 25 (NASA 616) flew three February missions supporting the new Swath Imaging Multi-polarization Photon-counting LIDAR (SIMPL). According to Dr David Harding (PI, GSFC), the opportunity to test SIMPL over Lake Erie's analog for sea ice is going to be of tremendous benefit.

ISRSE update

Preparations continue for the upcoming International Symposium of Remote Sensing of the Environment (ISRSE) in Italy this coming May. NASA and ASP folks are active in the planning of the technical sessions, developing a UAS workshop and demonstration, and presenting many papers and posters.

NSERC Student Airborne Research Program 2009

This summer, the DC-8 will be used as a hands-on research laboratory for 30 selected advanced undergraduate and early graduate students dedicated to Earth system science research.

The Student Airborne Research Program (SARP) is the first of its kind and will provide students with an opportunity to conduct airborne science using instruments onboard the DC-8. One of these instruments will be the Whole Air Sampler (WAS), which is used by Don Blake and his group at UC Irvine, to take in-situ measurements of the atmosphere over California's Central Valley. This data will be used by the students to interpret how large dairy operations in the area are affecting the atmosphere.

One advantage of the experiment is that it is readily understandable. Students will take samples of ambient air at various locations and



UND student conducting experiment onboard DC-8.

elevations, and then analyze them for chemical content. This allows students to learn airborne science techniques plus subsequent laboratory and data analysis.

Continued on page 3

Operation Ice Bridge

The NASA P-3 out of Wallops Flight Facility, will conduct the first Operation Ice Bridge mission out of Thule Greenland starting on March 30, 2009 and will continue its deployment until May 6th. Instrumentation on the P-3 will include, LVIS (Laser Vegetation Imaging Sensor), ATM (Airborne

Topographic Mapper), PARIS (Pathfinder Airborne Radar Ice Sounder), and the University of Kansas Snow Radar.

These instruments are being prepared to integrate onto the aircraft starting March 12th.

The time gap between the end of ICESat-I, which will probably occur this year, and the launch of ICESat-II in the 2014-15 time window creates a data gap in laser observations

of the changes in ice sheets, glaciers and sea ice. For the ice sheets and glaciers, the ICESat laser delivers critical ice thickness data on the properties of the rapidly changing ice streams; for the sea ice, the laser measures ice thickness.

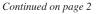
ICESat data over sea ice have successfully been used to retrieve

sea ice thickness and to study regional and inter-

annual variability.
Those results have contributed to a better understanding of the sea ice mass balance and its relation to the changes in the polar climate. It is critical that the laser altimeter

time series established by ICESat-I be interrupted as little

as possible.



High-Winds 09 Update

The High-Winds'09 NASA P-3 flights are in response to the Suborbital Science Flight Request Log Number FR# 9P005. Winds'09 flights are testing and validating algorithms aboard the NASA QuickSCAT, ocean surface wind-measurement satellite, using PolSCAT, a legacy Ku-band radiometer. High-Winds'09 is also testing the algorithm development for, and validating/calibrating PALS, an ocean surface salinity L/S-band radiometer, that will be launched on the NASA Aquarius satellite in 2010-2011. Expendable temperature/salinity drop-sonde buoys are deployed during the radiometer data collection flights for the Goddard Space Flight Center to collect temperature/salinity via in-situ Several GPS receivers are measurements. also being flown to conduct environmental conditions studies.

The five instruments being flown aboard the NASA WFF P-3B for the High-Winds mission are as follows:

- Airborne Polarimetric Scatterometer (PolSCAT) - Steven Dinardo, NASA JPL
- Passive/Active L-Band (PALS) Steven Dinardo, NASA JPL
- Airborne Expendable Conductivity Temperature Depth Probe (AXCTD), Dr. Daniel Jacob, NASA GSFC
- GNSS Instrument System for Multistatic Occultation (GISMOS) – Dr. James Garrison, Perdue University
- GPS Remote Sensing Instrument (GPSRS) – Dr. Michael Grant, NASA Langley Research Center

The P-3 crew deployed from NASA WFF on Febraury 16. To date three data collection flights have been flown for a total of 36.2 of the allocated 50 flight hours. The NASA WFF P-3 flights are based from the Goose Bay, Labrador, Canada Air Base, reaching a study site location approximating 50° N, 40°W. ▲

Contributed by John Valliant



Whose idea was this?!? P-3 on snowy taxiway, Goose Bay, Labrador, Canada.

Note from the Top



We just completed our annual review here at HQ and the ASP senior staff did an outstanding job briefing the senior SMD, ESD, and focus area leaders. These briefings were very timely as we are putting the final touches on the stimulus funding, getting our final FY09 budget settled, and working out our next multiyear budget planning cycle, the PPBE process. Also, the FY08 Annual Report has been released and it is really a great document showing the breadth of this organization. To get a hard copy see your center lead

or contact Matt Fladeland. You can also download a soft copy from http://airbornescience. nasa.gov. Kudos to the authors and both Mike Gaunce and Gailynne Bouret for doing such a great job as the editors and chief cat herders. In addition, I was given the opportunity to present our program and how it enables our Earth Science activities to the National Academy of Science's National Research Council (NRC), the group that generates the Decadal Survey and sets our NASA science priorities. The program had recently awarded its second set of Airborne Science Excellence Awards. (See page 3.) Many in our program are worthy of this award: I hope all who deserve it will get their opportunity to receive one.

The ISRSE Conference in Italy is forming into a major event for the international and interagency Airborne Science organizations. We received determination confirmation from our HQ legal staff that four of the programmatic meetings are not conferences so they do not count against the NASA conference limits. The SMD booth will also be added to the events as an EPO non-conference activity. Many of our program personnel will be involved in the conference as organizers, session chairs and presenters (both oral and poster), staffing the ASP booth, and participating in a UAS workshop and demo. We are the world leader for airborne science, gathering once every two years with our international counterparts. As such, we've invested much to insure we don't waste this opportunity for building international coordination among our supporters. Thank you.

Andy Roberts
Airborne Science Program Director

Ice Bridge (continued from page 1)

The NASA Airborne Science program, in concert with the ICESat program, has stepped up to investigate the Arctic sea ice and the Greenland ice sheet, with NASA's P-3 aircraft to help bridge the data gap between satellites.

The critical areas to be observed and measured with these airborne assets are coastal Greenland, and will include a long leg transit to/from Fairbanks, AK early in the mission for extended sea ice measurements.

Follow on missions relating to Operation Ice Bridge are expected to include:

Punta Areas, Chile, as well as, Christchurch, New Zealand as the best possible choices to complete the data set for the ICESat community. Aircraft will fly 4-5 flights to the appropriate areas from each location October/November, 2009-2014, as well as the, March, 2010-2014 time frame.

More information can be found on the Operation ICE Bridge web site: http://www.espo.nasa.gov/oib. ▲

Contributed by Kent Shiffer

NSERC Students (continued from page 1)

Another instrument the students will be using onboard the DC-8 is the MODIS/ASTER Simulator (MASTER). The installation, operation and data reduction for MASTER will be guided by Jeff Meyers of UC Santa Cruz. With this instrument, students will gather multi-spectral imaging data on algae blooms in Monterey Bay and agricultural processes in the Sacramento-San Joaquin Delta.

John Ryan, from the Monterey Bay Aquarium Research Institute, will assist students with analyzing multi-spectral data on the algae blooms. This experiment is appealing for student participation, since its scientific importance is straightforward and detection essentially involves only a few spectral bands



NSERC students and DC-8 in Costa Rica during TC4 campaign, 2007.

an infrared band being the most important.
 The microbes which constitute the bloom make daily round trips from depth to nearer surface and back. The best time for detecting them near the surface is from noon to 2:00 PM, but valuable data can be obtained at nearly any time.

Susan Ustin, from UC Davis, will assist students with analyzing multi-spectral data for crop classification, crop transpiration processes, and taking the temperature of river water entering the Sacramento – San Joaquin Delta. This experiment is also appealing for students because it will be using thermal and visible bands, allowing the students to gain hands-on experience using multi-spectral data for a variety of measurements.

Other faculty from around the nation will be involved and lectures will encompass a diverse range of topics related to airborne science. The faculty mentioned above will give lectures concerning the science behind atmospheric measurements and multi-spectral data applied to Earth system science. Additionally, faculty will give lectures on meteorology and modeling for planning science flights.

More information about SARP and participating faculty can be found at www.nserc.und.edu/learning/SARP.html.

Contributed by Alexandra Novak

ASP Awards and Recognitions

Congratulations, and a tip of the hat to the following over achievers:

- Randy Albertson

 NASA Exceptional Service Medal

 Spring Airborne Science Program Honor

 Awards
 - Wallops P-3 ARCTAS Upload Team Team Achievment
 - Michael Cropper, P-3 Configuration Manager Engineering Excellence
 - Chris Naftel, GH PM Project/Mission Management
 - John McKee Outstanding Achievement, Airborne Science Range and Telemetry Liaison
 - Brenda Mulac, NASA FAA Liaison Sustained Excellence

Correction to Winter Newsletter; Adam Webster won the Winter Airborne Science Program Honor Award for Engineering Excellence. Dave VanGilst (as was Adam) was part of the DC-8 team that won for the ARCTAS mission.

NASA SMD ESD Airborne Science Program 6-Month Schedule

	April	May	June July		August	September
WB-57		I	N Edge AK (DoD)	*****	GWI & Superpods test	*****
P-3	PALS/HighWinds					Operation Ice Bridge
DC-8		TM relay HYTHIRM		UND Education		Operation Ice Bridge
ER-2	LAASCES LA		♦♦♦♦ PDM.	AVIRIS /Phase	*****	*****
B-200	CALIPSO Night Cal 2	CALIPSO CONUS	RACORO			
UC-12			AID for ASCENDS			
G-III	UAV IPY-Greenland	Uavsar - \	VegDyn		Uavsar -	- Volcanos
Lear 25				CO2 Lase	r Sounder	
SIERRA	****	Testflights •••	UAV IPY A	rctic Ice		Ocean Optics
GHawk			GloPac			
T. Otter Cessna	ICESat gapfiller			AK LIDAR		

Platform Capabilities

Available aircraft and specs

Airborne Science Program Resources	Platform Name	Center	Duration (Hours)	Useful Payload (lbs.)	GTOW (lbs.)	Max Altitude (ft.)	Airspeed (knots)	Range (Nmi)	Internet and Document References
Core Aircraft	ER-2	NASA-DFRC	12	2,900	40,000	>70,000	410	>5,000	http://www.nasa.gov/centers/dryden/research/AirSci/ER-2/
	WB-57	NASA-JSC	6	6,000	63,000	65,000	410	2,172	http://jsc-aircraft-ops.jsc.nasa. gov/wb57/
	DC-8	NASA-DFRC	12	30,000	340,000	41,000	450	5,400	http:///.nasa.gov/centers/dryden/ research/AirSci/DC-8/
	P-3B	NASA-WFF	12	16,000	135,000	30,000	330	3,800	http://wacop/wff.nasa.gov
NASA Catalog Aircraft	DHC-6 Twin Otter	NASA-GSFS- WFF	7	5,000	12,000	25,000	160	500	http://www.twinotter.com
	Gulfstream III (G-III) (mil: C-20A)	NASA-DFRC	7	2,610	45,000	45,000	459	3,400	http://airbornescience.nasa.gov/ platforms/aircraft/g3.html
	King Air B-200 AND UC-12B	NASA-LARC	6.2	4,100	12,500	35,000	260	1250	http://airbornescience.nasa.gov/ platforms/aircraft/b-200.html
	DHC-6 Twin Otter	NASA-GRC	3.5	3,600	11,000	25,000	140	450	http://www.grc.nasa.gov/WWW/ AircraftOps/
	Learjet 25	NASA-GRC	3	3,200	15,000	45,000	350/.81 Mach	1,200	http://www.grc.nasa.gov/WWW/ AircraftOps/
	S-3B Viking	NASA/GRC	>6	12,000	52,500	40,000	450	2,300	http://www.grc.nasa.gov/WWW/ AircraftOps/
UAS	Global Hawk	NASA-DFRC	31	1500	25,600	65,000	335	11,000	http://airbornescience.nasa.gov/ platforms/aircraft/globalhawk.html
	Ikhana (Predator-B)	NASA-DFRC	30	3,000	10,000	52,000	171	3,500	http://airbornescience.nasa.gov/ platforms/aircraft/predator-b.html
	SIERRA	NASA-ARC	11	100	445	12,000	60	550	http://airbornescience.nasa.gov/ platforms/aircraft/sierra.html

ASP Upcoming Events

- * ARM 2009 Science Team Meeting March 30 - April 2, 2009 Louisville, KY http://stm.arm.gov
- * AIAA Unmanned Unlimited & Infotech@Aerospace April 6-9, 2009; Seattle, WA http://aiaa.org/content.cfm?pageid=230&lu meetingid=2070

Meetings accepting abstracts:

- * Geospatial 09
 Forest Service GIS Conference
 Snowbird Conference Ctr., UI
 April 27-May 1, 2009
 Abstracts accepted until Jan. 30, 2009
 http://fsgeodata.fs.fed.us/geoconference/
- 33rd International Symposium on Remote Sensing of Environment (ISRSE) Stresa, Italy May 4-9, 2009;

http://www.symposia.org/ Hotel booking: http://www.stresacongressi. it/it/download_registrati.php

- * AGU Spring Meeting: 2009 Joint Assembly The Meeting of the Americas May 24–27, 2009 Toronto, Ontario, Canada http://www.agu.org/meetings/ja09/
- * UAS 2009 11th Intl. Conference & Exhibition Paris, France June 9-11, 2009 www.uas2009.org Abstracts accepted until Jan. 31, 2009
- * AUVSI North America
 Washington Convention Center
 Washington, D.C.
 Aug. 10-13, 2009
 Abstracts accepted through Jan. 9, 2009
 http://symposium.auvsi.org/show/
 callforpapers.php

Airborne Science Newsletter

It's your newsletter!

Working on something interesting, or have an idea for a story? Please let us know, we'd love to put it in print.

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