C-130 Hercules 09/24/14 - 09/25/14

Flight Number: Gridbox TOA+Surface - Flight #15
Payload Configuration: ARISE
Nav Data Collected: Yes
Total Flight Time: 6.3 hours
Submitted by: Luci Crittenden on 09/25/14
Flight Segments:

From:	PAEI	**To:**	PAEI
Start:	09/24/14 19:52 Z	**Finish:**	09/25/14 02:08 Z
Flight Time:	6.3 hours		
Log Number:	141002	**PI:**	Christy Hansen
Funding Source:	Bruce Tagg - NASA - SMD - ESD Airborne Science Program		
Purpose of Flight:	Science		
Comments:	Successful science mission flown following late takeoff due to fog at the airfield.		

Flight Hour Summary:

	141002	151004
Flight Hours Approved in SOFRS	229	
Flight Hours Previously Approved		88.7
Total Used	140.3	18.2
Total Remaining		70.5

151004 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
10/02/14 - 10/03/14	Cal Flight	Science	8.6	8.6	80.1	
10/04/14	Transit	Transit	9.6	18.2	70.5	

Source URL:https://espo.nasa.gov/arise/flight_reports/C-130_Hercules_09_24_14_-_09_25_14#comment-0

Page Last Updated: April 22, 2017

Page Editor: Brad Bulger

NASA Official: Marilyn Vasques

Related Science Report:

ARISE - C-130 Hercules 09/24/14 Science Report

Mission: ARISE
Mission Summary:

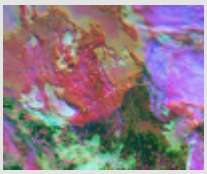
Gridbox TOA+SFC - Flt #15

The plan for today was to characterize radiative fluxes and cloud properties in a 100 by 100 km area centered near 74N, 135.5 W over the more solid ice portion of the sea ice 'tongue' extending to the south towards the Alaskan/Canadian coasts. The forecast was for mostly low cloud conditions free of cirrus. The goal was to map the upper atmosphere fluxes, the fluxes near the surface, to profile the atmospheric state and obtain in situ measurements of the clouds in the region coincident with satellite overpasses. However, heavy fog at Eielson delayed take-off until almost noon so that coincidence with the earlier set of overpasses could not be achieved. In addition, the western portion of the target area was overrun by thin cirrus which are much more difficult to account for in a radiative closure experiment with one airplane, due to their high variability in time and space. Therefore, a backup plan was executed to characterize low clouds and sea-ice to the east of the original target area under cirrus free conditions. Sea-ice conditions were characterized from LVIS on the transit to the first

waypoint in mostly clear conditions (~75% of the line was successfully sampled). A north-south line was then run over the western edge of a cloud deck that appeared to be a fairly uniform mid-level deck from satellite. This turned out to be a thin mid-level cloud with a low cloud layer below which became broken on the northern portion of the line. The line on a northerly heading was conducted at high altitude. The C-130 descended on the reverse heading but the clouds appeared to be breaking up. The cloud conditions appeared to be more favorable farther to the east both visually and from satellite. Therefore, a second line was set up that ran east-west across the sea-ice edge with overcast low clouds above. This line was run twice to construct a 'radiation sandwich' consisting of radiative fluxes above and below cloud, with a characterization of the in-situ cloud properties in between. The low clouds found along this line were multi-layered, with the upper level tops found to range from 4200-4800 feet and bases near 3400 ft. Shallow ascents and descents were conducted just above the upper cloud top to characterize the haze near the cloud with 4STAR. The lower layer was thin and hazy with tops near 800 ft and bases around 500 ft but occasionally appearing as fog to the surface. Recently formed sea-ice over part of the line was described as resembling 'spilt milk'. The later set of AQUA, TERRA, and Suomi-NPP overpasses coincided nicely with the aircraft measurements. All of the instruments were reported to work well. The 4STAR instrument received some interference from an aircraft antenna on the southward heading of the first line but this was easily mitigated with a slight course adjustment.

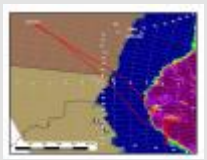
Images:

September 24, 2014 Figure 1



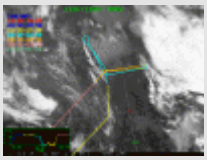
Read more

September 24, 2014 Figure 2



Read more

September 24, 2014 Figure 3



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September 24, 2014 Figure 4

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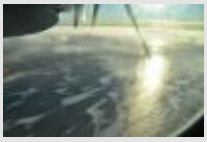
September 24, 2014 Figure 5



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Submitted by: William L. Smith Jr. on 09/27/14

Flight Reports began being entered into this system as of 2012 flights. If there were flights flown under an earlier log number the flight reports are not available online.

141002 Flight Reports

Date	Flt #	Purpose of Flight	Duration	Running Total	Hours Remaining	Miles Flown
08/24/14	Engineering Check Flight	Check	2.8	2.8	226.2	
08/29/14	Boom Calibration Flight	Check	0.5	3.3	225.7	
08/30/14	Project Check Flight	Check	5.2	8.5	220.5	
09/01/14	Transit (1 of 2)	Transit	8.7	17.2	211.8	
09/02/14	Transit (2 of 2)	Transit	6.6	23.8	205.2	
09/04/14 - 09/05/14	Arctic Ocean - Flight #1	Science	6.6	30.4	198.6	
09/05/14 - 09/06/14	140W Sea Ice - Flight #2	Science	7.1	37.5	191.5	
09/06/14 - 09/07/14	Ice ZigZag-Terra - Flight #3	Science	7.1	44.6	184.4	
09/07/14 - 09/08/14	CERES Gridbox - Flight #4	Science	8.4	53	176	
09/09/14 - 09/10/14	CERES Gridbox - Flight #5	Science	7.7	60.7	168.3	
09/10/14 - 09/11/14	MIZ Lawnmower - Flight #6	Science	8.8	69.5	159.5	
09/11/14 - 09/12/14	CERES Gridbox - Flight #7	Science	7.5	77	152	
09/13/14 - 09/14/14	CERES Gridbox - Flight #8	Science	8.3	85.3	143.7	
09/15/14 - 09/16/14	CERES Gridbox - Flight #9	Science	8.1	93.4	135.6	
09/16/14 - 09/17/14	Radiation Wall Pattern - Flight #10	Science	8.3	101.7	127.3	
09/17/14 - 09/18/14	CERES Gridbox - Flight #11	Science	7.2	108.9	120.1	
09/18/14 - 09/19/14	Sea Ice Albedo/CryoSat - Flight #12	Science	8.6	117.5	111.5	
09/19/14 - 09/20/14	Radiation Wall Pattern - Flight #13	Science	8.3	125.8	103.2	
09/21/14 - 09/22/14	Sea Ice & Radiation - Flight #14	Science	8.2	134	95	
09/24/14 - 09/25/14	Gridbox TOA+Surface - Flight #15	Science	6.3	140.3	88.7	