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-130 Hercules 09/21/14 - 09/22/14

| light Numbe | er: Sea Ice & Ra | adiation - Flight # | 14 | | | | | | | |
|----------------------------------|------------------|----------------------|--|---------|-----------|------------------|----------------|-----------------|--|--|
| ayload Conf | iguration: ARI | SE | | | | | | | | |
| av Data Coll | lected: Yes | | | | | | | | | |
| ubmitted by | : Luci Crittende | en on 09/22/14 | | | | | | | | |
| light Segme | nts: | | | | | | | | | |
| From: | | PAEI To: | | PAE | | 1 | | | | |
| Start: | | 09/21/14 16:50 | 0 Z | Finish: | | 09/22/14 01:00 Z | | <u>,</u> | | |
| Flight Time: | | 8.2 hours | | | | | | | | |
| Log Number: | | 141002 | | PI: | | Chris | Christy Hansen | | | |
| Funding Sou | urce: | Bruce Tagg - I | Bruce Tagg - NASA - SMD - ESD Airborne Science Program | | | | | | | |
| Purpose of I | Flight: | Science | | | | | | | | |
| light Hour S | ummary: | | | | | | | | | |
| | | | | | 141002 | | 151004 | | | |
| Flight Hours Approved in SOFRS | | | | | | | | | | |
| Flight Hours Previously Approved | | | | | | | 88.7 | | | |
| Total Used | | | | 140.3 | | | 18.2 | | | |
| Total Remain | ning | | | | 70.5 | | | | | |
| 151004 Fligh | t Reports | | | | | | | | | |
| Date | Flt # | Purpose of Flight | Duration | Runr | ing Total | Hours Rem | aining F | /liles Flown | | |
| 0/02/14 - 0/03/14 | Cal Flight | Science | 8.6 | 8.6 | | 80.1 | | | | |
| | | | | | | | | | | |

Page Last Updated: April 22, 2017

Page Editor: Brad Bulger

NASA Official: Marilyn Vasques

Related Science Report:

ARISE - C-130 Hercules 09/21/14 Science Report

Mission: ARISE **Mission Summary:**

Sea Ice and Radiation - Flt #14

Today's flight targeted the eastern side of the sea ice 'tongue' extending to the south towards the Alaskan/Canadian coasts. The planned flight pattern was near 73.3N, 130.6W near the sea ice/open ocean edge west of Banks Island. The planned pattern was very close to the region flown on the previous flight (19Sept2014). The primary objectives included a clear sky spectral and broadband albedo characterization coincident with the Terra overpass, a characterization of the sea ice-to-open ocean surface and radiative flux gradient, and the characterization of radiative/microphysical properties of low stratus clouds over the sea ice-toopen ocean surface gradient. The conditions were too cloudy for the albedo experiment but some good data were obtained in broken cloud conditions by LVIS to characterize the sea ice over part of the area. Two cloud decks were sampled. The first was low altitude stratus deck on the eastern side of planned pattern over the seaice towards Banks Island. The cloud tops were found to be about 1600 ft. The C-130 was unable to penetrate the cloud bases which were below 500 ft. The ocean just to the southeast of this area had cleared, and on one of





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note that some links and images will not load. the legs, a series of pitch/roll maneuvers were performed for LVIS calibration. An extensive, colder low cloud deck was identified by satellite to occur just north of the target area. This cloud deck appeared in satellite data to envelope a huge area over the arctic on this day. The ground team directed the aircraft toward the southern end of this deck to investigate and sample. These clouds were found to be mostly multilayered, with the upper layer cloud boundaries near 4200-5200 ft (tops) and 3400 ft (bases). The tops of the lower deck were just above 1500 ft and the bases appeared to be stuck to/near the surface since the C-130 was unable to penetrate at 500 ft. The lower deck appeared to have eroded away in some areas beneath the upper deck. For both cloud areas that were sampled, radiative properties were obtained close to the surface at altitudes of 500-1000 ft, as well as above the cloud tops. In addition, stair-step patterns were executed to porpoise thru the clouds to obtain microphysical information and flux profiles. No mid-level clouds or cirrus were present overhead. There were numerous coincident satellite overpasses and all of the instruments were reported to work well.

Images:

September 21, 2014 Figure 1



Read more

September 21, 2014 Figure 2



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September 21, 2014 Figure 3



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September 21, 2014 Figure 4



Read more

Submitted by: William L. Smith Jr. on 09/23/14

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





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|--------------------------------------|--|----------------------|----------|------------------|--------------------|----------------|--|--|--|--|--|
| 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 | | | | | | |
| <u>09/04/14 -</u> <u>09/05/14</u> | Arctic Ocean - Flight #1 | Science | 6.6 | 30.4 | 198.6 | | | | | | |
| <u>09/05/14 -</u> <u>09/06/14</u> | 140W Sea Ice - Flight #2 | Science | 7.1 | 37.5 | 191.5 | | | | | | |
| <u>09/06/14 -</u> <u>09/07/14</u> | Ice ZigZag-Terra - Flight #3 | Science | 7.1 | 44.6 | 184.4 | | | | | | |
| <u>09/07/14 -</u> <u>09/08/14</u> | CERES Gridbox - Flight #4 | Science | 8.4 | 53 | 176 | | | | | | |
| <u>09/09/14 -</u> <u>09/10/14</u> | CERES Gridbox - Flight #5 | Science | 7.7 | 60.7 | 168.3 | | | | | | |
| <u>09/10/14 -</u> <u>09/11/14</u> | MIZ Lawnmower - Flight #6 | Science | 8.8 | 69.5 | 159.5 | | | | | | |
| <u>09/11/14 -</u> <u>09/12/14</u> | CERES Gridbox - Flight #7 | Science | 7.5 | 77 | 152 | | | | | | |
| <u>09/13/14 -</u> <u>09/14/14</u> | CERES Gridbox - Flight #8 | Science | 8.3 | 85.3 | 143.7 | | | | | | |
| <u>09/15/14 -</u> <u>09/16/14</u> | CERES Gridbox - Flight #9 | Science | 8.1 | 93.4 | 135.6 | | | | | | |
| <u>09/16/14 -</u> <u>09/17/14</u> | Radiation Wall Pattern - Flight #10 | Science | 8.3 | 101.7 | 127.3 | | | | | | |
| <u>09/17/14 -</u> <u>09/18/14</u> | CERES Gridbox - Flight #11 | Science | 7.2 | 108.9 | 120.1 | | | | | | |
| <u>09/18/14 -</u> <u>09/19/14</u> | Sea Ice Albedo/CryoSat - Flight #12 | Science | 8.6 | 117.5 | 111.5 | | | | | | |
| <u>09/19/14 -</u> <u>09/20/14</u> | Radiation Wall Pattern - Flight #13 | Science | 8.3 | 125.8 | 103.2 | | | | | | |
| <u>09/21/14 -</u> <u>09/22/14</u> | Sea Ice & Radiation - Flight #14 | Science | 8.2 | 134 | 95 | | | | | | |
| <u>09/24/14 -</u> <u>09/25/14</u> | Gridbox TOA+Surface - Flight #15 | Science | 6.3 | 140.3 | 88.7 | | | | | | |

