

Other: Airtec BT-67 12/03/17 Science Report

Aircraft: Other: Airtec BT-67 - 18M008

Date: Sunday, December 3, 2017

Mission Summary:

Today we again flew 2 full missions plus a portion of a third mission. Linking these missions took advantage of good weather over a large portion of our operations area, and by doing so we were able to get the second of two baseline missions for this campaign completed. The missions we flew are:

Mission – TAM Gate East Low (Priority: High)

This mission, and the companion TAM Gate East High flight, establish a pair of fluxgates above the Transantarctic Mountains, separated by 20 km. This particular mission covers the lower-most of the two fluxgates, and connects with a similar line flown in 2013 to the west and north. Clouds and mountain obscuration prevented us from flying the last two segments of this line.

Mission – Hamilton Line 2 (Priority: Baseline)

This flight's purpose is to sample the surface topography at the southern apex of more than half of all planned IceSat-II orbits. In this way, we can provide "ground truth" for every IceSat-II orbit with just two flights, including the companion Hamilton Line 1 flight. The vertical stability of the surface must also be quantified for this approach to succeed, and this flight provides measurements for this purpose. Specifically this flight samples the ground tracks on the East Antarctic side of the Pole. It also covers the Brunt-led 88S traverse route, shown on the map in light gray, overlapping with the Hamilton Line 2 flight there and for a short portion on the opposite side of the Pole. The flight is named in honor of Gordon Hamilton.

Mission – TAM East (Priority: High)

Today's flight completed this mission, which we partially covered on our flight of 12-01. This mission flies the centerlines of the Reedy Glacier and Mercer Ice Stream in the east, and Scott Glacier in the west. We also overfly five long-duration GPS experiment sites at the foot of Mercer. We fly a Rosetta project line off the the lower Scott Glacier (scheduled to be flown in the late 2017 season) for the purpose of validating ocean tide models in that area. Working with the TAM Central and TAM GL West missions, it also establishes flight lines approximating the TAM grounding line and a second line approximately 20 km outboard of the grounding line.

Flight conditions were excellent today, with light winds and negligible turbulence. Temperature on take off at McMurdo was -7 C, and -34 C at pole where we refueled halfway through. UAF lidar and KU radar performed well throughout the flight, no issues.

Submitted by: John Woods on 12/05/17

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Page Editor: Brad Bulger

NASA Official: Marilyn Vasques

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