Flight report for the Getz Ice Shelf transect.

Friday, October 16, 2009

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Background: The weather forecast for this flight came from the NSF on-line Antarctic Mesoscale Prediction System, from a cooperative effort with John Sonntag, and from a briefing with the Chilean Flight Services. These forecasts showed that the only clear area was at the Getz ice shelf, which had clear skies to the west, and clouds to the east, with the cloud cover moving slowly to the east, and winds off the shelf. Attachment 1 shows the planned flight line in the vicinity of the ice shelf. The plan was to fly two low level lines at about 2500 ft above the surface, one just to the north of the grounding line, and one inland and to the south, where the grounding line was provided by Eric Rignot. The purpose of these flights was survey the bottom topography with MCoRDS, the presence of under-ice water with the gravimeter, and the ice topography with ATM. On the figure, the plan was to begin our descent from 35,000 ft at waypoint 6, and reach 2500 ft at waypoint 7, or just to the east of the Martin Peninsula. Because, the Kansas group got their revised snow and Ku-band radars installed in the plane on Thursday, these low-level flights would provide the first opportunity to check out these radars for future use on the sea ice flights.

Operations: The plane took off at 0911 local time. On the 35,000 ft transit to Getz, regions of clear sky

permitted LVIS and mapping camera (DMS) observations of the sea ice. We reached waypoint 6 at 1247, but because of heavy clouds, did not come down the operational altitude until just east of the Scott Peninsula. As we flew west, the clouds lifted, and the sun came out, so that the surface and horizon were clearly visible. At the end of the Getz line, we turned out over the sea ice, where the photograph shows the sea and glacier ice in the vicinity of waypoint 10. In this region, the sea ice was characterized by open water (photograph). We then flew up the DeVicq glacier to an elevation of about 5,000 ft. We flew back and rejoined the inner survey line at waypoint 16. The flight east along the survey line was uneventful, even though the cloudiness and weather were worse to the east; the pilots were able to fly the entire line. We climbed up to 28,000 ft starting at waypoint 31 at 1630, for a total of 3.5 hrs of low-level flight. The ATM, MCoRDS and gravimeter returned good data throughout the low level flights. The atmospheric piggyback experiments also worked. The snow and Ku-radar were being run in a variety of test modes, where this data is being analyzed today (Saturday). We then returned to Punta Arenas at 28,000 ft. We did two laser calibrations over the airstrip and taxiway, one for LVIS, and one for ATM, and landed at about 9 pm for an 11 hr 45 min flight. Because of deteriorating weather, no flights were planned for Saturday.