

GEST is a consortium of scientists and engineers, led by the University of Maryland, Baltimore County (UMBC), to conduct scientific research in Earth and information sciences and related technologies in collaboration with the NASA Goddard Space Flight Center (GSFC). The consortium members of GEST include UMBC, Hampton University, Howard University, Caelum Research Corporation, and Northrop Grumman Corporation.

GEST News is edited by Amy Houghton and published quarterly by UMBC. Keep up to date between newsletters by checking our website.

Goddard Earth Sciences and Technology Center
University of Maryland,
Baltimore County
5523 Research Park Dr.
Suite 320
Baltimore, MD 21228
<http://gest.umbc.edu>
Phone: 410-455-6362
Fax: 410-455-8806

Michael Studinger & Operation IceBridge

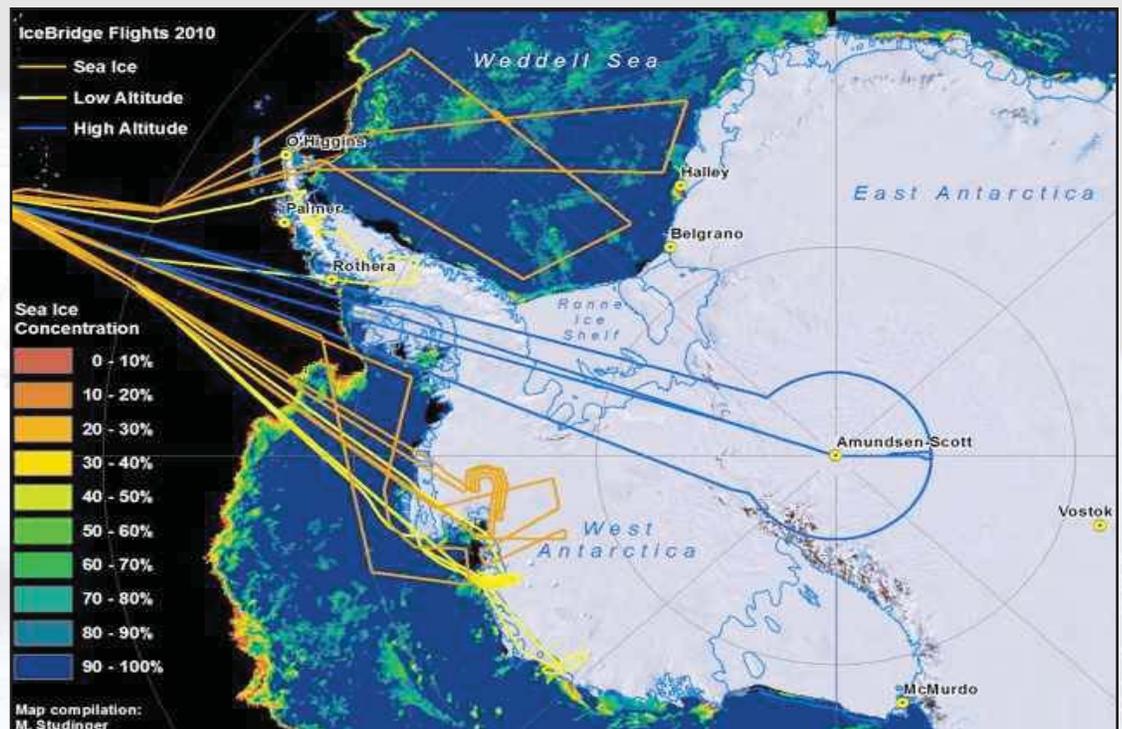
In November 2010, Operation IceBridge concluded its second deployment to Antarctica. They were able to fly 10 successful missions and, according to **Michael Studinger**, IceBridge project scientist, "We collected landmark sea ice data sets in the Weddell, Bellingshausen and Amundsen Seas. We have now flown over every ICESat orbit ever flown, ... surveyed many glaciers along the Antarctica Peninsula, the Pine Island Glacier, and in Marie Byrd Land."

The 2009 campaign was the first year IceBridge flew over Antarctica, and they were fortunate to have good weather conditions and few maintenance issues; unfortunately, the 2010 mission was beset with weather issues and a cumbersome maintenance problem with their DC-8 at their base in Chile. Still, they were able to fly over the following glaciers to take measurements: Hektoria, Drygalski, Crane, Flask, and Leppard, which all drain into the Larsen A & B ice shelves, which broke apart in 1995 and 2002, respectively, as well as Attlee, Hermes, Lurabee and Clifford, which still drain into Larsen C (still intact).

Studinger creatively explains the importance of these studies: "Like a cork in a bottle, ice sheets can plug the neck of a glacier. Remove that ice shelf and the glacier freely dumps ice in the ocean. Scientists study how glaciers continue to respond after the loss of the ice shelves." This data can be used to improve ice sheet models and predict sea level rise.

Operation IceBridge received much press: Media Day in Chile on November 15, 2010; follow-up features in *The Baltimore Sun*, MSNBC, and *OurAmazingPlanet*; a feature in UMBC's magazine, and most recently on *ScienceNews.org*. And, in a related *New York Times* article, GEST's **Robert Bindshadler** discussed studying the Greenland ice sheet as well as glacier and sea ice measurements in Antarctica (links to these can be found on GEST's website.)

The IceBridge team has returned to the Arctic to continue studies from March - May 2011. We hope they have a safe and productive trip.



Compilation shows all 10 flights flown during Operation IceBridge Antarctic 2010 campaign
(photo courtesy of Michael Studinger, IceBridge project scientist)

INGE TEN KATE IN ANTARCTICA

While Operation IceBridge was studying glaciers in Antarctica, **Inge ten Kate** was part of the Systematic Team of *ANSMET: the Antarctic Search for Meteorites*. The team kept a blog for the duration of their expedition (Dec 2010 - Jan 2011), with updates on weather conditions, mechanical issues (such as a busted skidoo, which is how they travel around on the snow), and exciting news of their discoveries. The website includes the blog as well as a link to Meteorite Portraits and other details of their exploration (<http://geology.cwru.edu/%7Eansmet/index.html>).

From McMurdo, Antarctica, both the Systematic and Reconnaissance teams tried to post daily entries of findings, such as Jim Karner's post on December 27, 2010, when he reported they'd found 56 and 47 meteorites, respectively, in the two days since Christmas. He also explains that there are terrestrial rocks and then there are meteorites, and a reliable test is the magnet-on-a-chain test: 90% of meteorites attract a magnet because of some amount of iron-nickel metal within them, but there may be other criteria that rule out whether a rock is actually not a meteorite.

After a full two months of living in 8' square/8' tall tents and a multitude of days searching on foot for meteorites, the teams had gathered 1,200 meteorites to send back to Johnson Space Center, to aid in the continued study of meteorites and what they can tell us about various asteroids. Congratulations on a successful mission.

SUZIE IMBER SUMMITS AMA DABLAM

In early October 2010, **Suzie Imber** flew to Kathmandu and then to Lukla. For three days, she and her companion hiked to their destination: the Base Camp of Ama Dablam, Nepal. While they elected not to have sherpas, other teams did and there was a sense of camaraderie among the climbers. From Base Camp (4500m), their first stop was Advanced Base Camp at 5,400 meters. From here, they climbed up to 5,700 meters where Camp 1 is located, an arduous climb when you are carrying your own load. Next came an exposed rock climb to Camp 2, located at 6,000 meters. While the ANSMET expedition teams were camping in tents surrounded by the wind and snow of Antarctica, Suzie and her friend at one point pitched their tent on a ledge at the edge of camp. Many load carries were completed between base camp and these higher camps in order to gather sufficient supplies of food, kit and fuel for an attempt at the summit. Their summit attempt began at midnight on November 4th, climbing 300 meters of mixed ice and rock with ice axes and crampons. Temperatures reached -30 degrees, and the climb up the Grey Tower to the avalanche-prone Camp 3 was lit only with head torches. Then, at dawn, they tackled 600 meters of sheet ice. They finally reached the summit at 1:30 pm and were rewarded with an amazing view, surrounded by peaks including Everest and Lhotze. Their time on the summit was brief (only 15 minutes), as they had a long descent back to Camp 2. Suzie reported that "clouds came in as we left the summit, and abseiled down the lines again. Once at Camp 3, we had to navigate the Grey Tower in the dark. Abseiling down in the dark when you can't see the bottom of the rope and you know there's a drop of thousands of feet below you is a little intimidating. We were exhausted by the time we made it back to Camp 2 just after 10:00 pm."

After carrying 70 lb. packs from Camp 2 to base camp and reversing their trek back to the Lukla airport (noted as the most dangerous airport in the world due to being perched on the side of a mountain), Suzie and her partner returned to Kathmandu after an accomplishment of a lifetime. We're happy to report that Suzie is back at GSFC ... until the next adventure calls.

SUSHIL CHANDRA RETIRES

Dr. **Sushil Chandra** of Code 613.3, Atmospheric Chemistry and Dynamics, announced his retirement from UMBC as a Senior Research Scientist in early January 2011 after a tenure with GEST of 8 years. He had been at Goddard for ~49 years, where he collaborated on and published several papers related to satellite measurements of tropospheric ozone, especially with **Dr. Jerry Ziemke**. GEST wishes him all the best.



Photo courtesy of the ANSMET blog