MACKENZIE DELTA AND BEAUFORT COAST SPRING BREAKUP NEWSLETTER

Report **2017-018**
June 20, 2017 at 19:00 UTC

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Welcome to Breakup 2017

You may also want to check out the Mackenzie-Beaufort Breakup group on Facebook (https://www.facebook.com/groups/1745524288993851/).

This year, in addition to sharing the newsletter to our mailing list of >370 addresses, we are posting the newsletters on the CACCON (Circum-Arctic Coastal Communities KnOwledge Network) website. You can find them at https://www.caccon.org/mackenzie-beaufort-break-up-newsletter/

Funding for our current breakup monitoring activity is from the Climate Change Geoscience Program of the Geological Survey of Canada, Natural Resources Canada.

Please let us know if you do not wish to receive these reports (contact info above) and we will take you off the list. For those of you living in the north, we welcome any observations of timing of events, extent of flooding, evidence of breakup, or anything out of the ordinary, and we thank you for all of the feedback received so far.

For those interested in conditions further south, we recommend that you contact Angus Pippy (Water Survey of Canada) in order to receive his very useful High Water Report: contact Angus at 867-669-4774 or angus.pippy@ec.gc.ca.

Water level data presented in our newsletters are courtesy of Environment Canada (Water Survey of Canada) and are derived from their real-time hydrometric data website at http://www.wateroffice.ec.gc.ca/index_e.html, which we acknowledge with thanks. Particular thanks to colleagues in Inuvik for keeping so many of the delta gauges operating through the difficult breakup season. Weather reports and forecasts are also from Environment Canada (Meteorological Service of Canada) at http://weather.gc.ca. Ice road conditions are from the GNWT Department of Transportation road reports and travel alerts (@GNWT_DOT). Daily MODIS imagery is courtesy of NASA Worldview at https://worldview.earthdata.nasa.gov/ .

Current conditions

Mostly clear skies and warm temperatures are forecast for the region today. In the delta, Inuvik and Aklavik can each expect sunshine and high temperatures of 22°C and 21°C respectively. Out on the coast, the Tuktoyaktuk forecast calls for sunshine and a high of 17°C with a NE wind of 20 km/h. Paulatuk has sunshine, a high of 13°C, and a SE 20 km/h wind. Sachs Harbour a high of 8°C with sun and an E wind of 20 km/h. Ulukhaktok has a forecast for increasing cloud with a high temperature of 8°C.

A report received yesterday from Noel Gordon indicates the ice melted quickly on Yaya Lakes over the weekend. Only the last lake still contained some ice at the time of Noel's observation.

Satellite imagery

A mostly clear day yesterday produced excellent imagery showing the ongoing breakup of landfast ice across the region. Figure 1 shows the coast from west of Herschel Island to Liverpool Bay. Along the Yukon Coast, the landfast ice surrounding Herschel Island remains in place but is visibly eroding between Kay Point and Herschel Island (Figure 2). West of Herschel, there are melt pools off the tidal inlets on Nunaluk Spit. East of Kay Point, the Yukon coast is clear of ice except at Shingle Point, where ice remains behind the spit (Figure 2).

In Mackenzie Bay, the ice bridge is broken off Shallow Bay and the Olivier Islands. Mackenzie River outflow is rapidly melting the landward edge of the remaining ice (Figure 1). Open water is now expanding along the front of Pelly Island but the landfast ice is still in place east of Pelly and around Richards Island to the mouth of Kugmallit Bay. There is a dramatic breakup of ice along the Tuktoyaktuk Peninsula, particularly off Mckinley Bay and Kugmallit Bay (Figure 1). The ice remains intact in Liverpool Bay but is visibly degraded.

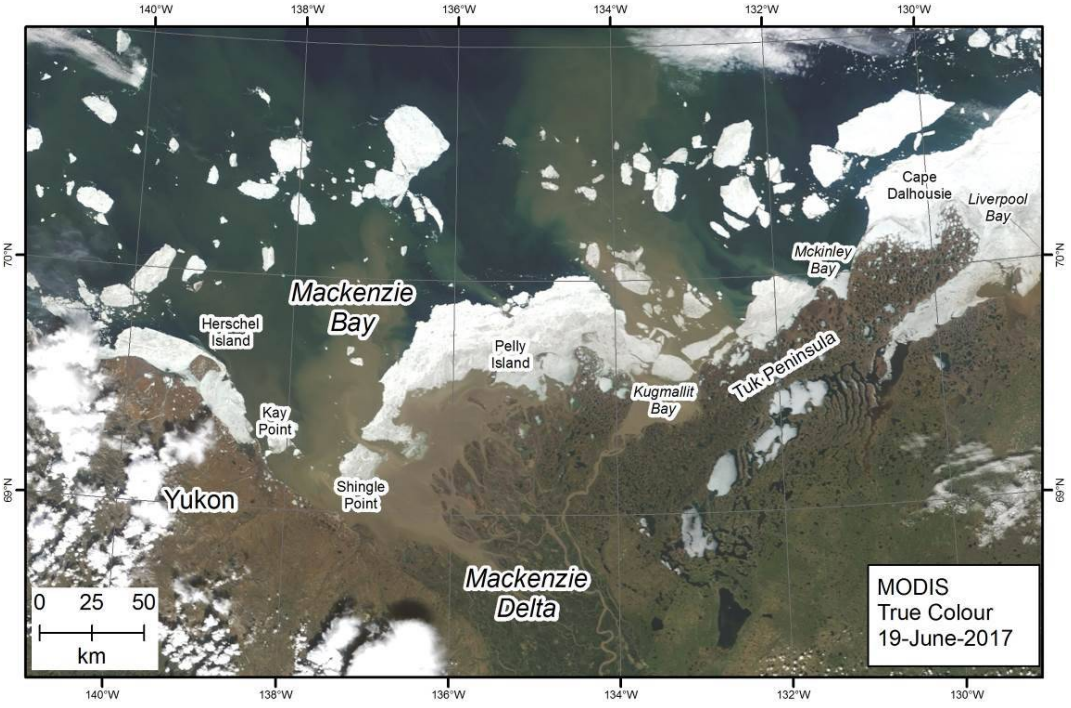

Figure 1. NASA Worldview Corrected Reflectance from the Terra satellite for 19 June 2017, showing the mainland coast west of Herschel Island to Liverpool Bay.

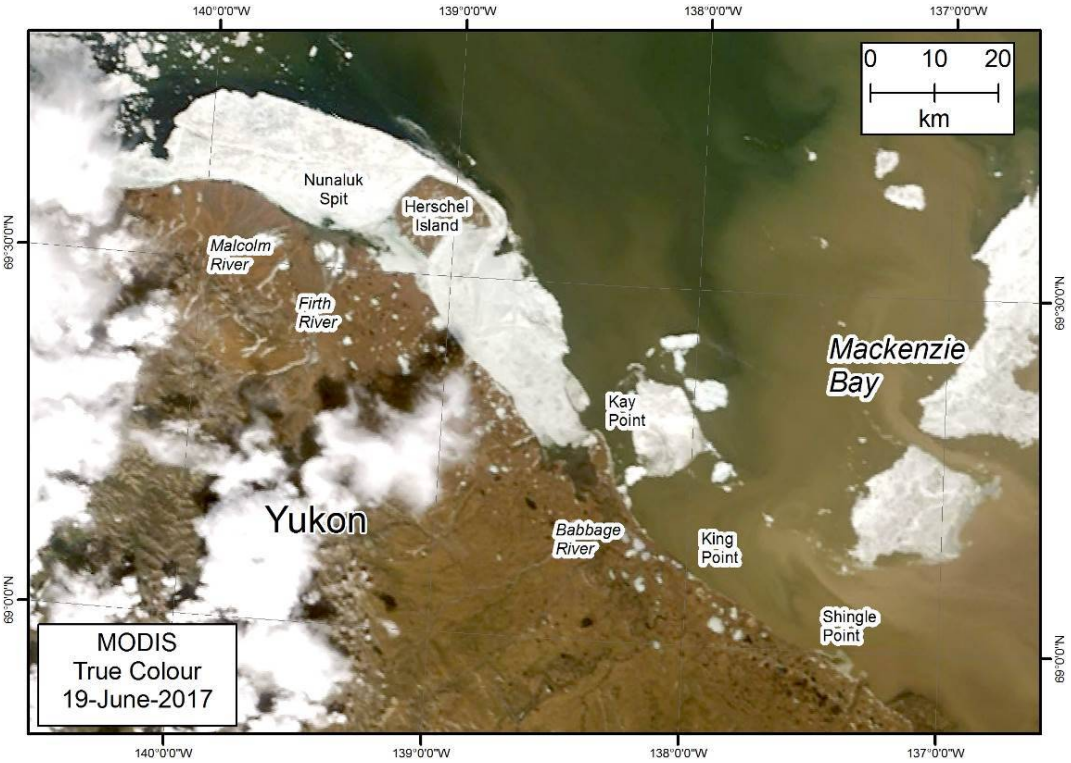

Figure 2. NASA Worldview Corrected Reflectance from the Terra satellite for 19 June 2017, showing the Yukon coast west of Herschel Island Shingle Point.

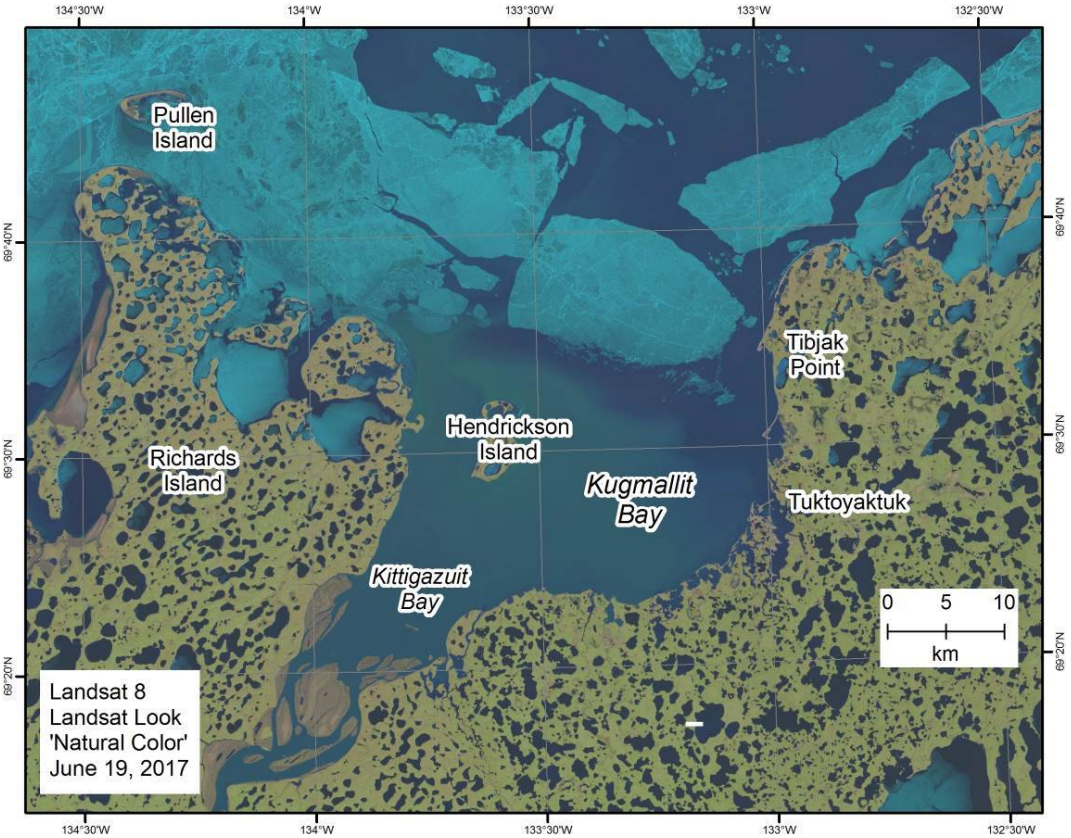

Figure 3. Landsat 8 (Landsat Look 'Natural Colour') image showing Kugmallit Bay on 19 June 2017. Landsat 8 Imagery courtesy of the US Geological Survey.

The ice bridge spanning the mouth of Kugmallit Bay has broken and ice is moving out of the bay, although its progress may be slowed by the NE winds in the forecast for Tuktoyaktuk (Figures 1 and 3). The Mackenzie River plume off East Channel can be seen extending more than 100 km from the mouth of Kugmallit Bay helping to move mobile ice offshore (Figure 1). North of Tuktoyatuk, landfast ice has detached from the coast at Tibjak Point. The majority of lakes in the area are now clear of ice but the northernmost lakes on Richards Island still have some ice cover (Figure 3).

In Amundsen Gulf, the partially obscured image shows the breakup of an approximately 50 km wide section of ice at the mouth of Dolphin and Union Strait (Figure 4). There has been little change recently in the position of the ice edge in Minto Inlet and Prince Albert Sound. There is still ice remaining in the harbours at Ulukhaktok and Sachs Harbour but reports indicate it is melting fast. Near Paulatuk, the ice in Darnley Bay is heavily fractured and mobile, allowing today's SE winds to possibly move ice out of the bay (Figure 5). The remaining ice in Franklin Bay is largely intact.

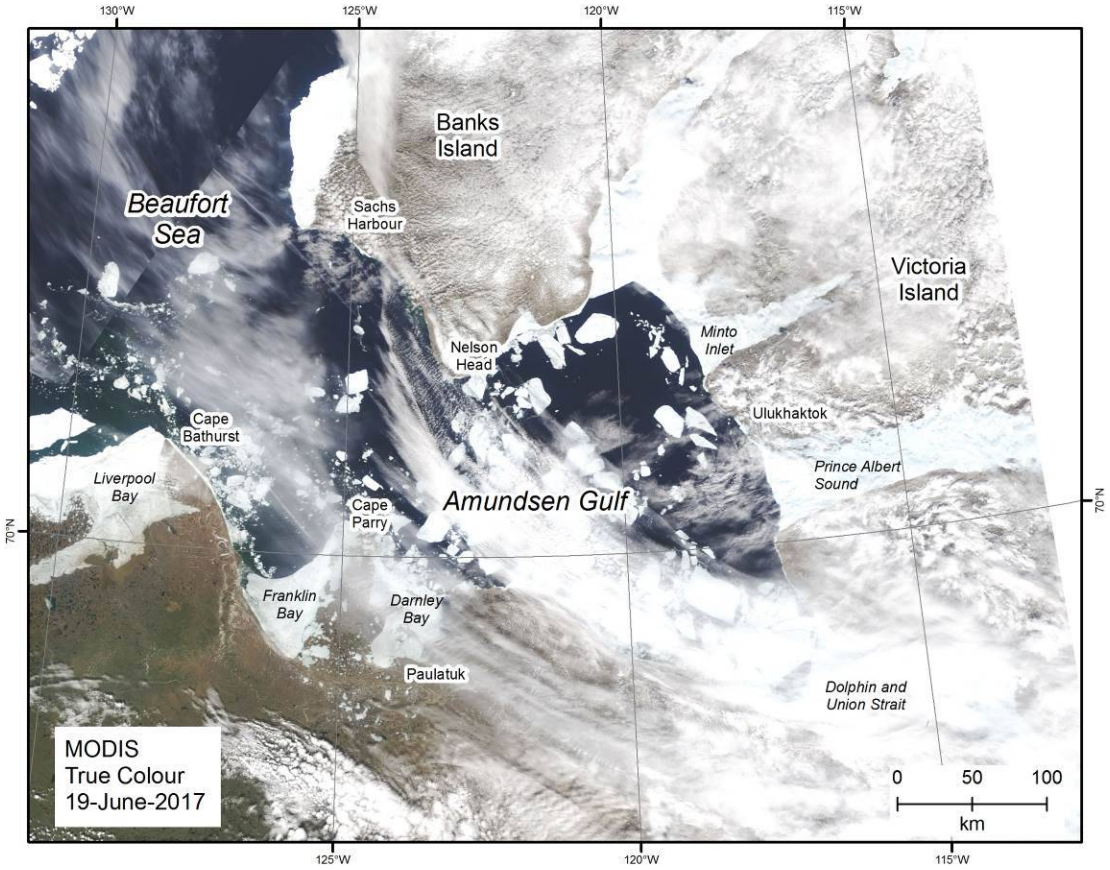

Figure 4. NASA Worldview Corrected Reflectance from the Terra satellite. Showing Amundsen Gulf on 19 June 2017.

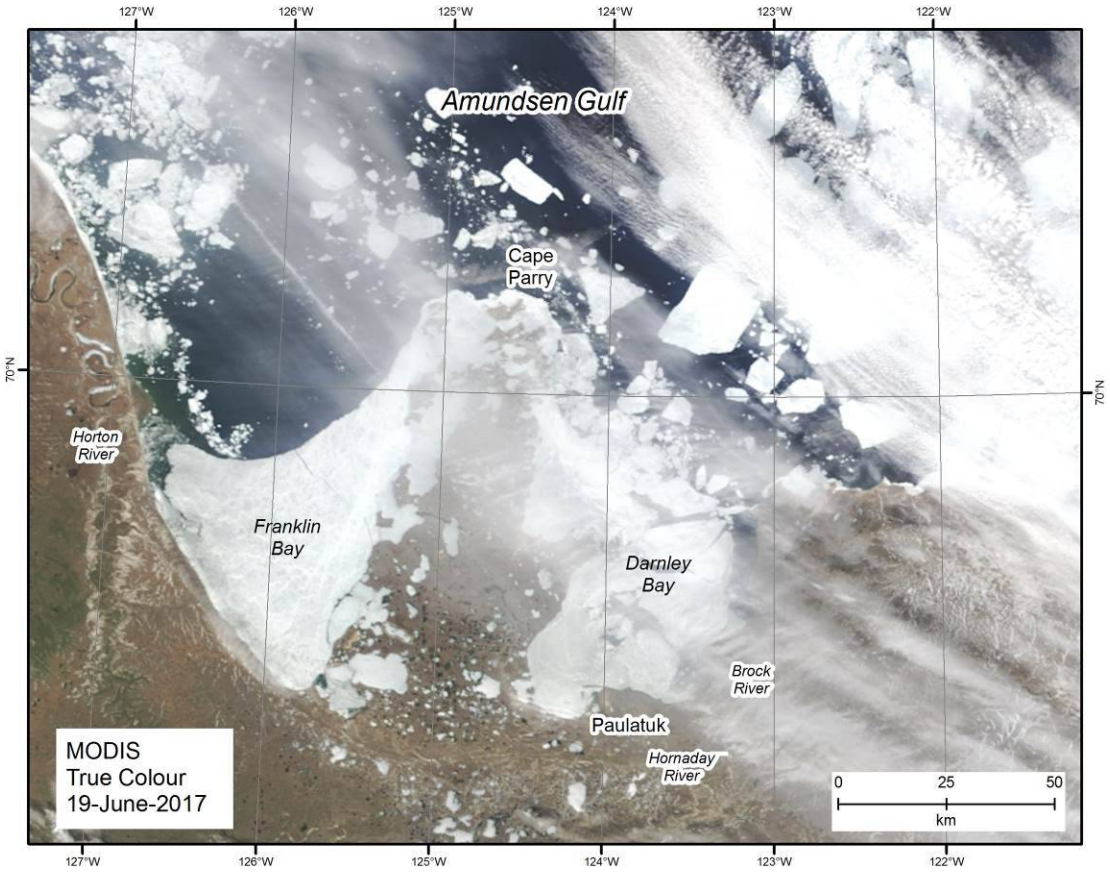

Figure 5. NASA Worldview Corrected Reflectance from the Terra satellite for 19 June 2017, fractured landfast ice visible through cloud in Darnley Bay.