

## **SuperDARN Canada Radars – Clyde River and Rankin Inlet**

The SuperDARN (Super Dual Auroral Radar Network) Canada radars at Rankin Inlet and Clyde River are part of a worldwide network of more than 35 radars that monitor the space weather conditions in the earth's upper atmosphere. The radars are operated remotely from our headquarters at the University of Saskatchewan in Saskatoon, Saskatchewan. The radars are designed to make a complete scan every minute, 24 hours a day, 365 days a year. The exceptions to continuous operations at Clyde River and Rankin Inlet in 2017 were minimal (mainly due to intermittent power outages and network errors).

The data from the Nunavut radars were shared with researchers worldwide and used in more than 20 peer-reviewed publications papers involving researchers from more than ten countries in 2017, so far. With more radars and increasingly innovative technology, the global SuperDARN research collaboration has been tackling phenomena like magnetic storms and other disturbances that produce both beautiful displays of the northern lights and detrimental effects on modern technology such as GPS navigation, electrical grids, and satellites.

Personnel from Saskatoon did not visit the radars at Rankin Inlet or Clyde River in 2017. Rick LePage assisted with minor maintenance at the Rankin Inlet site, including rebooting the main computer, troubleshooting heating issues in the site building, and replacing batteries in the power supply. At Clyde River, Mike Jaypoody and Robert Kautuk from the Ilisaqsivik Society assisted with resetting electronic radar components and updating the satellite phone.

Engineers from SuperDARN are planning a visit to both Rankin Inlet and Clyde River in August of 2018, spending approximately one week at each site. At Clyde River the engineers will perform general maintenance of the electronics, towers, antennas, guy ropes and the radar control hut, as well as replace a faulty mixer unit on the interferometer receive path, and check baluns at the antennas for water or sand intrusion. At Rankin Inlet, general maintenance of the electronics, towers, antennas, guy ropes and radar control hut are planned.

New funding for research operations from the Canada Foundation for Innovation (CFI) and from the Government of Saskatchewan was secured in 2017.

No changes to the site operations are expected in 2018 in terms of project scope, equipment used or other licensing requirements.