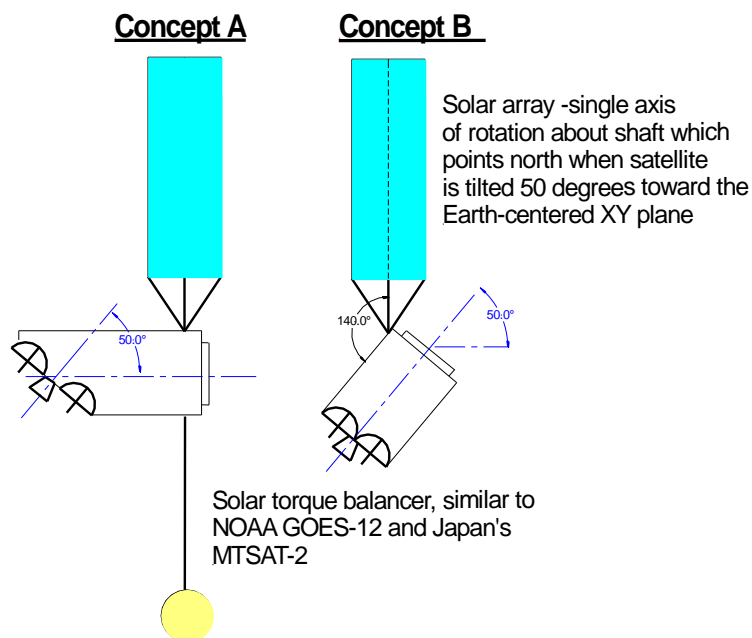


Polar Communications and Weather (PCW) Mission

Led by the Canadian Space Agency (CSA), the PCW Mission is now being cooperatively developed with Environment Canada (EC) Canada's Department of National Defence (DND) and other Departments. Northeast has supported CSA since PCW's inception in late 2006. An industry team led by MDA Corporation is currently implementing Phase-A. The PCW system concept entails satellites in elliptical orbits to provide high data rate communications services and high temporal resolution meteorological data to, and of, the Arctic. The ground system will include a communications gateway station, a satellite/mission control center and a meteorological data processing facility.

Northeast provided the first integrated assessment of all aspects of this initiative; see "Considerations for a potential Polar Communication and Weather Space mission for Canada's North", August 2007. This report subsequently became the *Terms-of-Reference* (ToR) for the industry and government Phase-0 studies.

Northeast provides top-level recommendations and analyses to the CSA. For example the sketch on the left below, from a 2008 Northeast technical memo, is believed to be the first rough visualization of what is now the PCW spacecraft configuration and the associated attitude/ pointing scheme, to meet the dual requirements for 24/7



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meteorological EO and communications services for the North. Because an elliptical orbit will likely be used, the spacecraft's attitude varies in a controlled way throughout the northern portion of the orbit so that the requirements for meteorology and communication are simultaneously met. It is very different than LEO or GEO EO satellites.

Northeast has also worked closely with EC, DND and CRC personnel to develop the *PCW User Requirements Document*, which is the mission's highest-tier technical document. To date, Mr Buckingham has been *de facto* technical editor.