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Implementation and Support of the Canadian Plan

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Overview

- CSA support to SMAP
  - Negotiating an implementing arrangement with NASA
    - Covers support to algorithm development, cal/val, etc.
    - Potential use of a Canadian Ground reception station

- Leadership to remain within EC

- Need a comprehensive overview of the funding needs
  - Especially CSA contribution as part of the overall cost;
  - Would be useful to obtain 2 scenarios:
    1. Highest return – Highest cost;
    2. Acceptable return – Minimal cost.

- CSA is currently addressing how to fund the different needs.

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Implementing Arrangement (1/2)

- Recommend and arrange selected, Canadian scientists' participation in SMAP SDT meetings and activities as required;
- Support a Canadian Science Team to conduct research and development activities related to SMAP. The Canadian SDT representative will coordinate and provide its members with information and data as required;
- Support SMAP pre- and post-launch data calibration/validation and algorithms development activities;
- Support the pre- and post-launch testing, demonstration, and implementation of SMAP data;
- Provide the SMAP SDT with pre and post-launch calibration/validation data and algorithms for Canadian regional products;

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Implementing Arrangement (2/2)

- Make available the results of the research and development, testing, and implementation activities to the SMAP SDT in a timely manner;
- Support the Canadian SDT to participate in science observations, planning, data analysis, validation, and archiving activities, as required; and
- Support the Canadian SDT to participate in SMAP Working Groups as required;
- Coordinate with NASA the public communications on the Canadian SMAP activities (Canadian media releases and web site);
- Evaluate the benefits and potential of a Canadian ground receiving station for the SMAP operations.

Funding Vehicles

- GRIP
  - Preferred funding vehicle for OGDs;
  - Project duration limited to 3 years;
  - Require a MOU.

- G&C
  - Preferred funding vehicle for academia;
  - A “cluster” could be dedicated to: Soil moisture observations from space - assimilation studies;
  - To be ready in Autumn/Winter 2011 only.

- Contracts
  - For support in the near term;
  - However, little budget available in FY2010-11;
  - Until the G&C program can be tapped into.

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GRIP

In partnership with other Canadian departments and agencies, the CSA Governmental Related Initiatives Program (GRIP) supports the research, development, demonstration and implementation of effective and efficient uses and applications of EO in multiple domains, including SMAP mission related thematics:

- Weather & Climate Forecasting
  - i.e. water management, fire management, etc.
- Agriculture Productivity
  - i.e. plants and crop productivity; potential yield.
- Drought
  - i.e. vegetation stress, water stress, drought monitoring.
- Natural Hazards
  - i.e. operational flood forecasting, landslides, watershed run-off + infiltration prediction.
- Human Health
  - i.e. early warning systems / heat stress & virus spreading rates; landscape epidemiology/vector habitats for human diseases.

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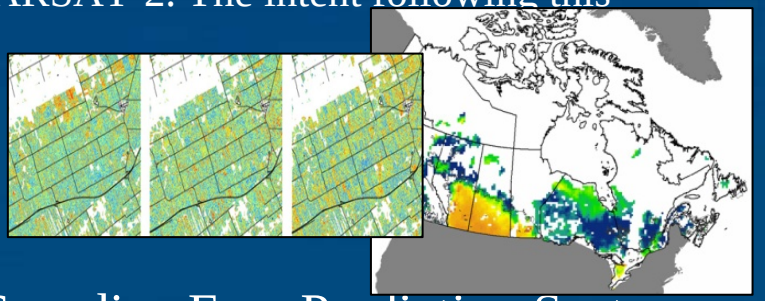
GRIP related activities with SMOS: Cal/Val & Applications

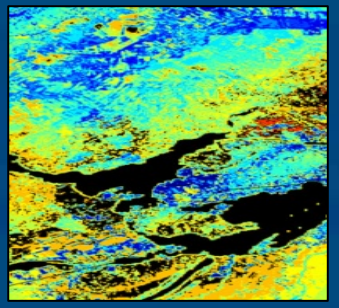
Agriculture: Supporting Canadian Agricultural Risk Management

•AAFC will develop, test and evaluate methods to quantify surface soil moisture information derived from advanced satellites sensors, including SMOS and RADARSAT-2. The intent following this research and development phase will be to demonstrate the assessment of risk due to extreme soil moisture conditions using integrated active and passive microwave soil moisture products.



Weather & Climate Forecasting: Implementing Canadian Env. Prediction Systems

•EC is developing a project titled "Operational Implementation of Soil Moisture Data In EC's Prediction System" to improve the representation of soil moisture by including the SMOS mission L-band measurements in the Canadian Land Data Assimilation System (CaLDAS). In CaLDAS, either a simple variational approach or an Ensemble Kalman Filter will be used to combine SMOS information with results from a land surface modeling system in order to produce an optimal estimate of soil moisture.



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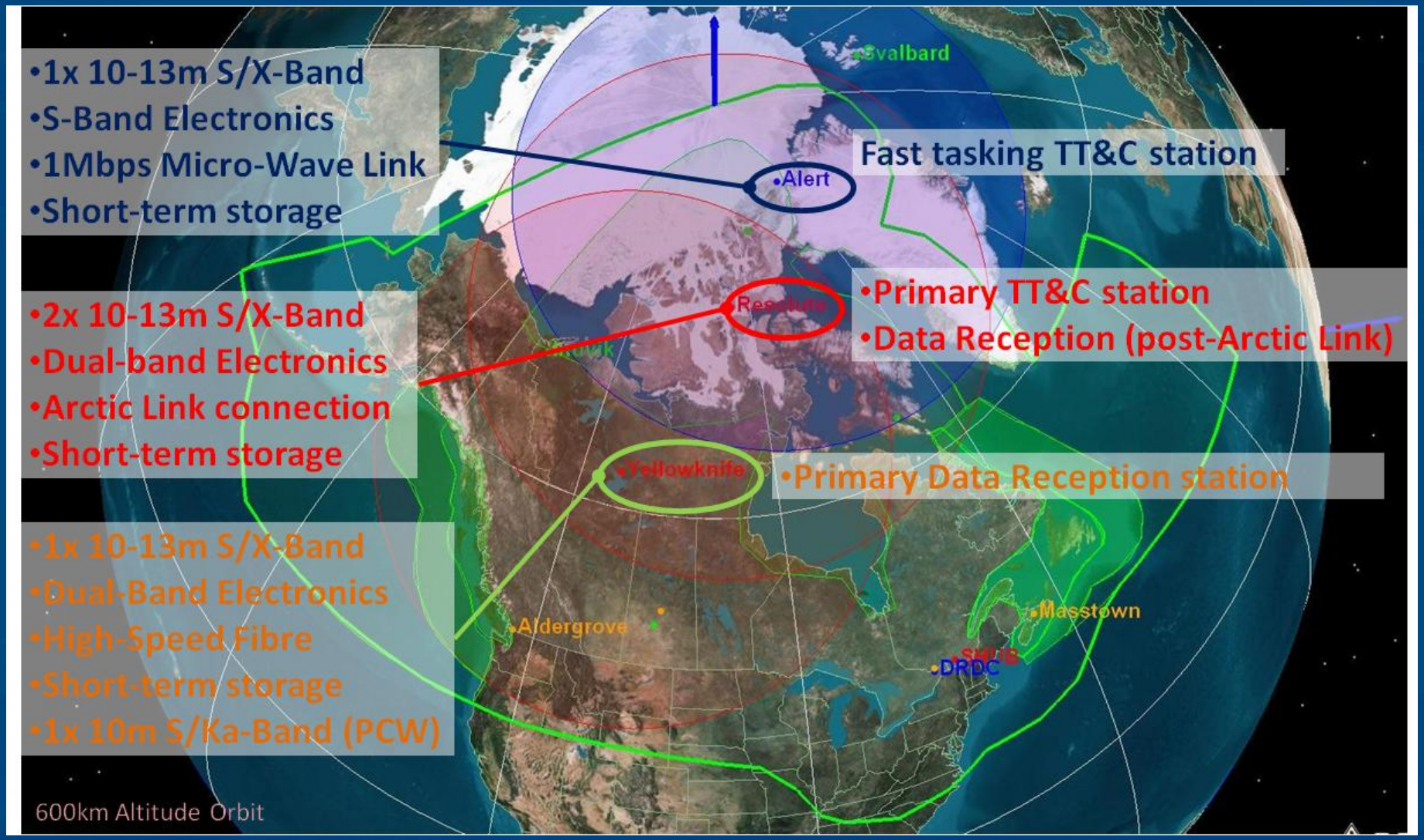
NGS Configuration Proposal



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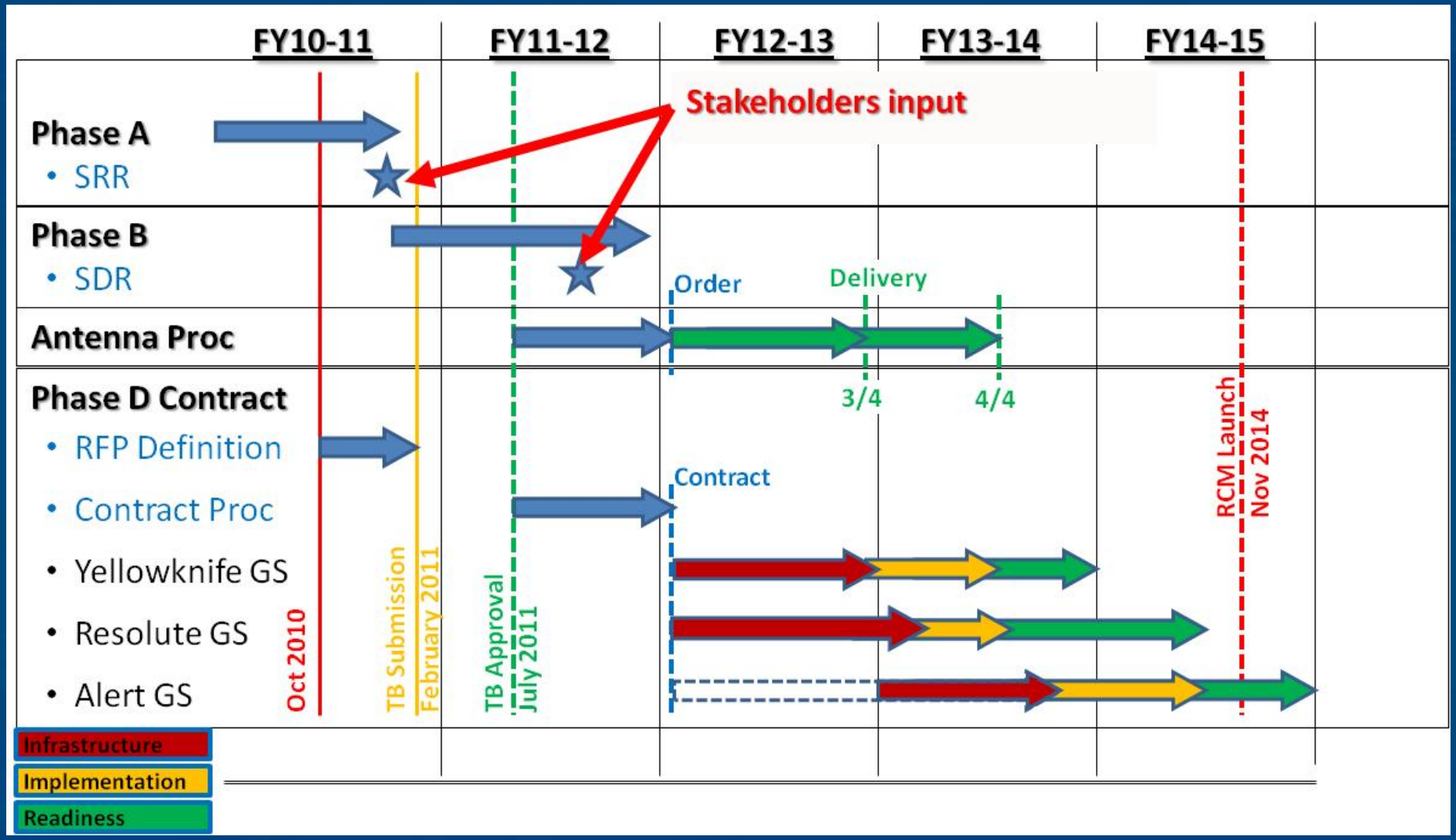
Anticipated NGS Impl. Schedule



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Conclusion

- Need to demonstrate how the products will be used operationally by other levels of government (Provincial, Municipality) and the private sector;

- For CSA to contribute, the vision has not only to address R&D but also tackle operational products
    - How do we make this happen?
    - Outreach / communication plan …

-Thanks to EC, AAFC and Universities in leading/supporting this workshop
    - SMAP is an great opportunity provided by NASA with numerous potential benefits to Canada.