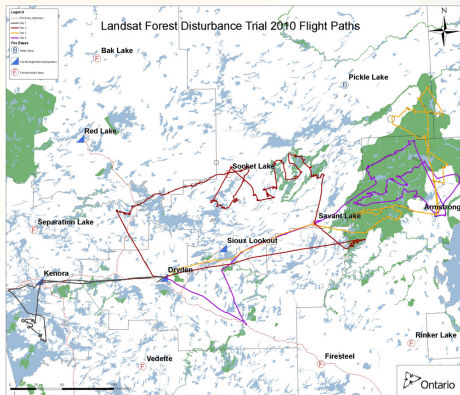


Natural. Valued. Protected.

Landsat Forest Disturbance Trial, 2010

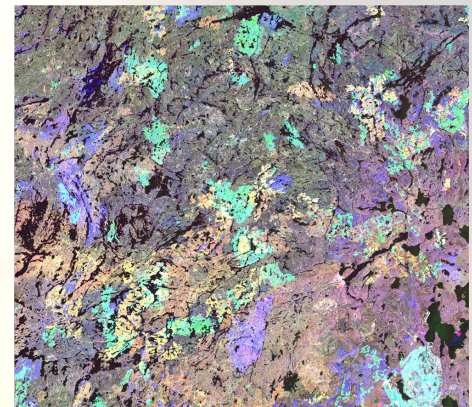


Flight path for the 2010 trials



Eurocopter EC 130 B4

Our transportation.

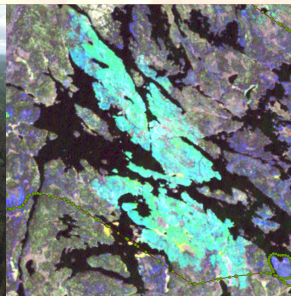


This composite image is an example of the digital output from the change detection process

The accuracy of the change detection Algorithms used with Landsat imagery triplicates were tested from the Alneau Peninsula in Lake of the Woods to the Northern tip of Wabakimi Park over a 4 day period.

Using Landsat imagery from three different time periods a composite image can be generated. The coloured areas represent both areas where a disturbance has occurred and the time period in which it occurred.

Observations

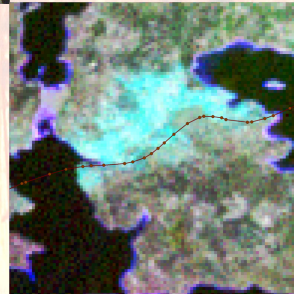


Wildfires

Landsat disturbance detection is very good at detecting fires on the landscape. A number of old fires have been detected using this methodology that were never previously mapped in NRVIS. Fires leave such a distinctive signature on the landscape that very few burns were chosen as test sites for the 2010 survey. The sites that were chosen confirmed the ease with which fires can be detected using Landsat imagery, and the degree to which they can be differentiated from other disturbances.

Blowdown

Wind damage, also referred to as blowdown can take many forms. A tornado track leaves a very clear path of destruction that is picked up by the Landsat imagery and easily classified by a remote sensing specialist. Smaller, isolated blowdown events or areas where only some of the trees are blown down still register as a change in the composite image but are much more difficult to classify.



Insect Damage

Insect damage is one of the more difficult types of disturbance to detect using this method. As you can see in the image, the signature generated from an area heavily damaged by jack pine budworm is still very spread out and sporadic. As opposed to the other three images which each have clear boundaries. This is because insect infestations and the mortality that occurs as a result happens over many years and rarely if ever kills 100% of the trees in an infested area. This year was the first test of Landsat's ability to detect insect damage. The results were very positive, but it remains more difficult to classify than other disturbances.

Depleted Harvest

Areas that have been harvested by forestry companies show up very clearly in the imagery. Despite the fact that Landsat imagery is very coarse at 30 meter resolution, it is still able to pick up the logging roads that are built to enable the harvest. This resolution yields all the detail required while not bogging down computers with unnecessarily long processing times. Landsat imagery is also free and has a historical archive of imagery going back more than thirty years.

