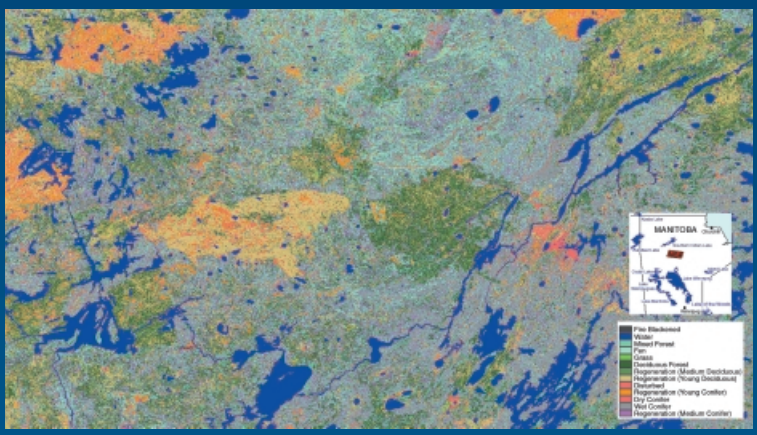
Characteristics of a Boreal Ecosystem

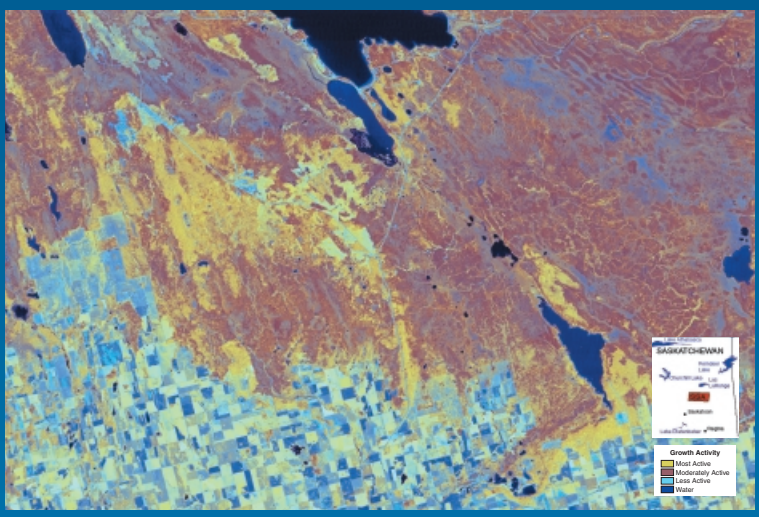
Oak Ridge National Laboratory (ORNL)

Land Cover of a Boreal Forest in Manitoba, Canada



Two study areas were characterized as part of the Boreal Ecosystem-Atmosphere Study (BOREAS) from 1993 to 1996. The BOREAS investigation focused on improving our understanding of the exchanges of radiative energy, heat, water, carbon dioxide, and trace gases between a Canadian boreal forest and the atmosphere. The land cover map of the Northern Study Area (NSA), above, was based upon a Landsat-5 thematic mapper image taken in June 1995.

Vegetation Growth in a Boreal Forest in Saskatchewan, Canada



Vegetation growth was also measured in BOREAS. At the Southern Study Area (SSA), above, the forest area contrasts with the adjacent agricultural fields. The image is derived from Landsat-5 thematic mapper imagery taken in August 1990.

The world's boreal forests have been known to play an important role in global climate, but studies of the ecosystems have been hindered by harsh conditions and remoteness of location. BOREAS revealed that boreal forests store and release more heat in the spring and early summer than previously thought. The BOREAS data will improve global-scale models of climate change.