Trochia (orbit)

Mati (eye)

Tachys (rapid)

RapidEye 2008 ->

(Germany)

- Choma (earth)
- Choros (space)

First commercial satellites to image the Red-edge band (measures variances in vegetation)



5 spectral bands - multispectral imagery - includes the 'Red Edge' (RE)

Blue	440 – 510 nm
Green	520 – 590 nm
Red	630 – 685 nm
Red Edge	690 – 730 nm
Near-Infrared	760 – 850 nm
400 nm 500 n B	m 600 nm 700 nm 800 nm G R

Table 1: RapidEye's Spectral Bands

Swath width of 77 km



Studies have suggested that this band is able to provide additional information to identify plant types, nutrition and health status, and characterize plant cover and abundance, among other features.



Figure 1: Typical spectral reflectance curves of selected surfaces in relation to the RapidEye spectral bands

The red portion is where chlorophyll strongly absorbs light and the NIR is where the leaf cell structure produces a strong reflection (green line in Fig. 1). Variations in both the chlorophyll content and the leaf structure are often reflected in the Red Edge band.

Figure 2: Example for a Relative Chlorophyll Map

Red and NIR alone show a slim difference between grassland and crops

Increased separation of vegetation types, e.g. grassland versus crops



bands including the representation of selected land cover classes. a:

Designed/launched 2008 by Rapideye AG Munich/Berlin,Germany

□ Implemented by <u>MacDonald Dettwiler (MDA)</u> Richmond, BC

Satellites built by Surrey Satellite Technology Ltd (UK)
 World leader in building small satellites (ex-U. Surrey) - 1 cubic metre (150kg)

Data downloaded to receiving stations, Svalbard, Norway

□ Rapideye acquired 2011 by Iunctus -> Blackbridge, Lethbridge, AB (LA)

□ Planet Labs, CA acquires Blackbridge and RapidEye

Sept 5 2011: Iunctus Geomatics Corp. of Lethbridge, Alberta, Canada's exclusive distributor of French Spot optical satellite data, purchased Germany-based RapidEye for ~13 million euros (\$19m)

- includes 5 satellites <u>http://www.rapideye.de/gallery/index.htm</u>





Sept. 30, 2013: RapidEye announced that its North American agricultural imaging campaign has been completed successfully. The ran monthly from May 15, 2013 through September 14, 2013, generating more than 16 million km² of cloud-free imagery over 3 million km² spanning twenty-eight US states and 3 Canadian provinces.



Time series, South Dakota

RapidEye image of Alaska, USA, collected in September 11, 2012



Rapideye data at UNBC (2012-13)

- ➢Prince George
- >Mt. Revelstoke NP
- ➢Mt. Robson (Berg Lake)



- >Andrei Icefield, Coast Mountains
- >Lyngen, Norway (70 degrees north)





