

SENSE, PREDICT, ACT

PLANETARY SKIN

**ALERTS: Detecting and responding to
land use change**

Planetary Skin Institute
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ALERTS: Global Land Use Change ObSErvatory



ALERTS^{BETA} is a Web-based platform for land use change, providing:

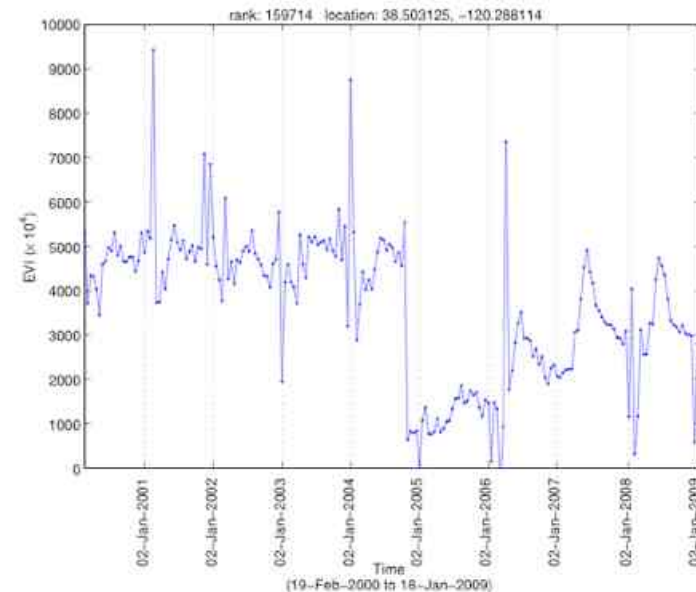
- Global coverage of change events
- 1km x 1km resolution (250m in some locations)
- Near-real time results (6-8 weeks) and reconstructed historical record
- Accuracy comparable to best available existing alternatives
- Automated, low-cost execution
- Customizable electronic alerts
- Basic online analysis tools

ALERTS^{BETA} is a path toward global coverage at minimal incremental cost

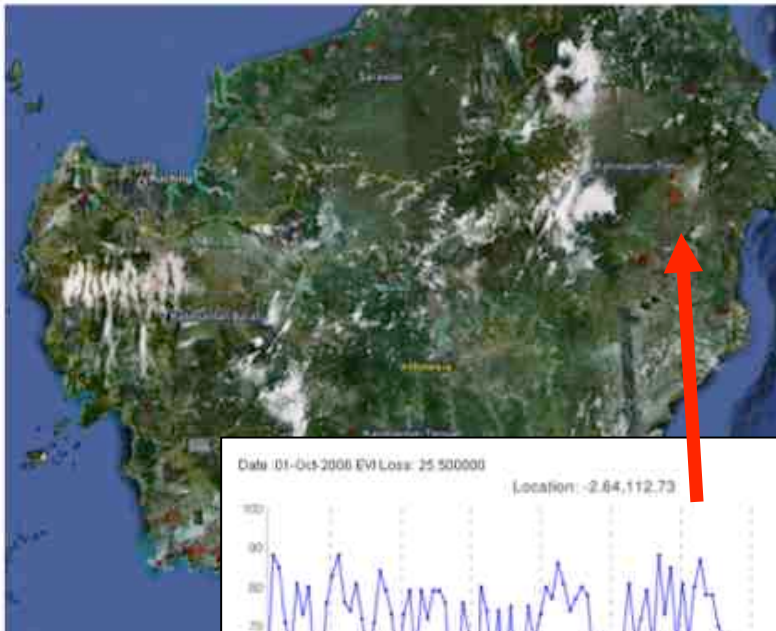
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How ALERTS algorithms work

- Current approaches to land use change detection are difficult to scale globally
- **ALERTS^{BETA}** uses automated algorithms to identify changes in vegetation signal from MODIS data products (EVI/FPAR)
- Algorithms exploit **historical variation** to support change detection, enabling global scalability



Example: History of forest fires in Indonesia



- Algorithm detects severe breaks in signal
- Pixel is identified as highly probable change
- Recovery 'signature' of rapid regrowth permits identification as fire

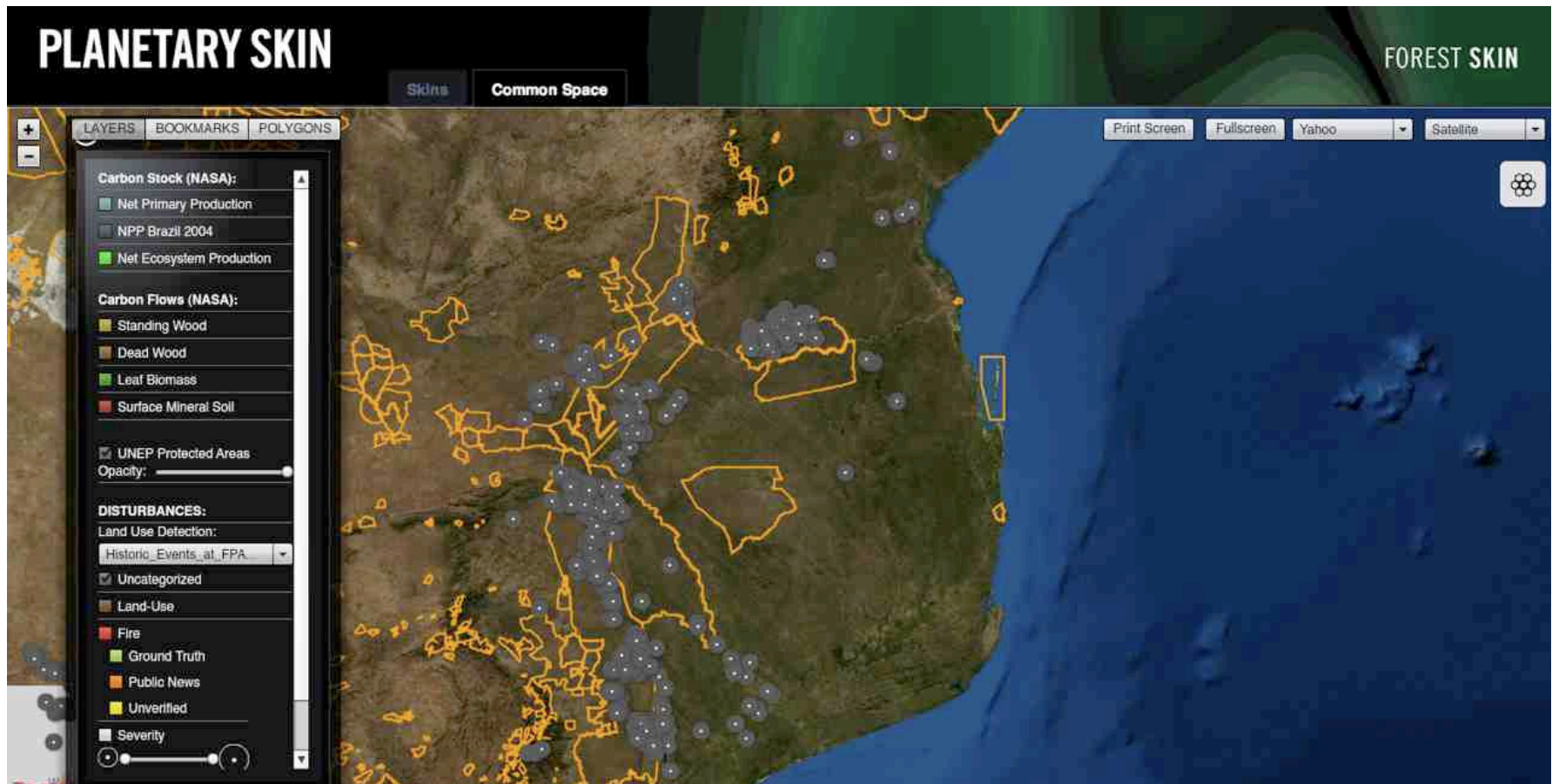
Approach can reconstruct historical record AND support near real-time detection

We have developed an information platform to serve as a global public good

- Objective: support end-users to respond to land use change by providing open and accessible collaboration platform – ‘www.ourplanetaryskin.org’
- Web 2.0 interface allows contextual layering, polygon creation and validation, comments and ratings
- Future development priorities include data upload and social networking tools



Change detection, coupled with contextual layering and other tools, enables managers to identify and respond to land change



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We are assessing the accuracy of ALERTS, and initial results are extremely positive



- We are currently completing a rigorous quantitative evaluation against available validation data sets
- Initial results suggest that GLUCOSE historical algorithm performance compares favorably with best available alternatives in both temperate and tropical forests
- Initial validation results will be reported in a white paper to be released at COP-16 in Cancun

Some key advantages of ALERTS include...



- Automated, rapid refresh providing near real-time situational awareness
- Ability to scale to nation-wide coverage almost immediately
- Innovative algorithms for managing data quality and cloud cover issue
- Open, accessible platform for accessing data and images
- Inexpensive, non-profit operation supported by network of world-class partners