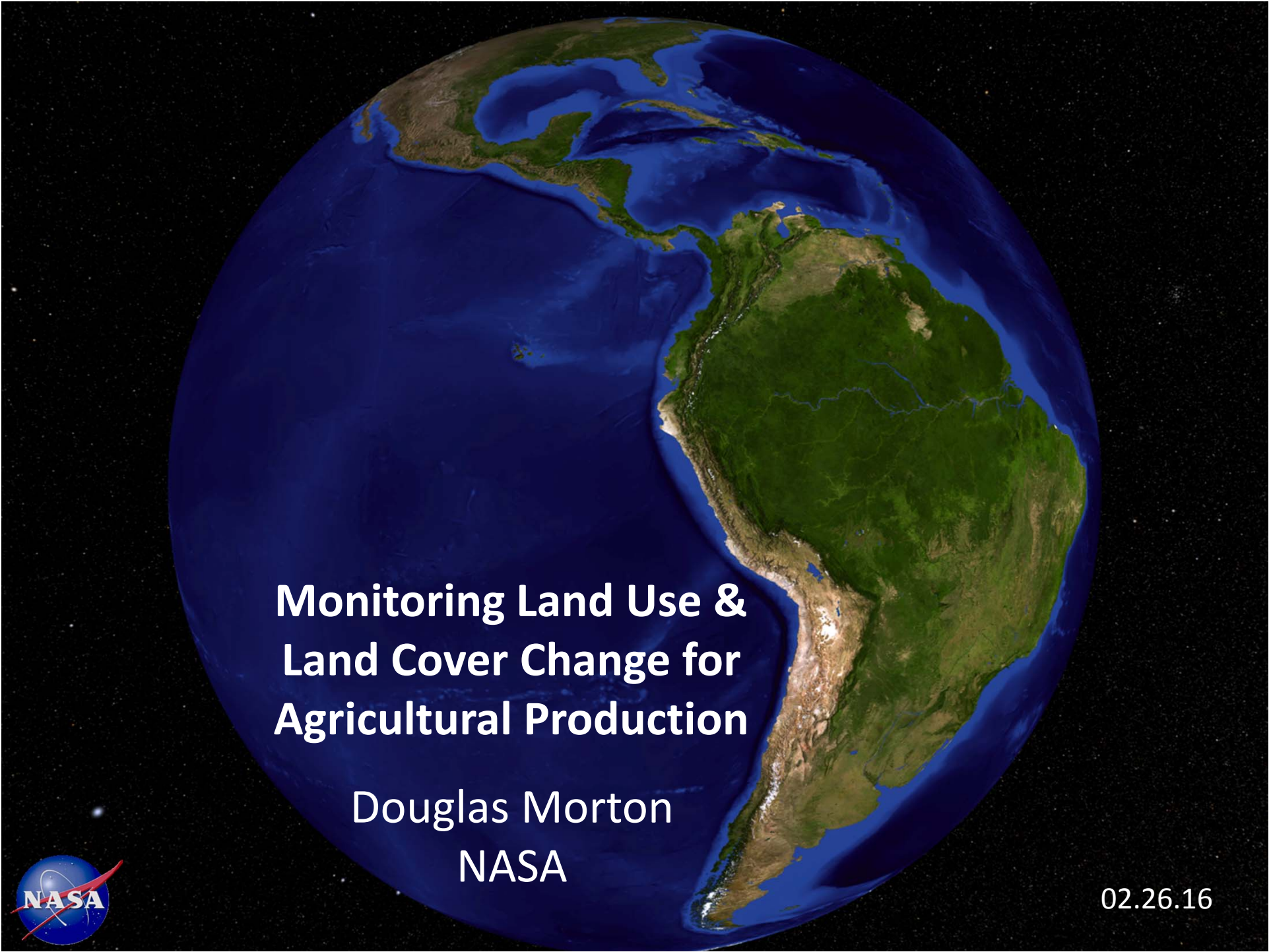


A satellite image of Earth from space, showing the Western Hemisphere. The Americas are visible, with North America at the top and South America below it. The oceans are a deep blue, and the land is covered in green vegetation, with some brownish areas indicating arid regions. The text is overlaid on the image.

Monitoring Land Use & Land Cover Change for Agricultural Production

Douglas Morton
NASA



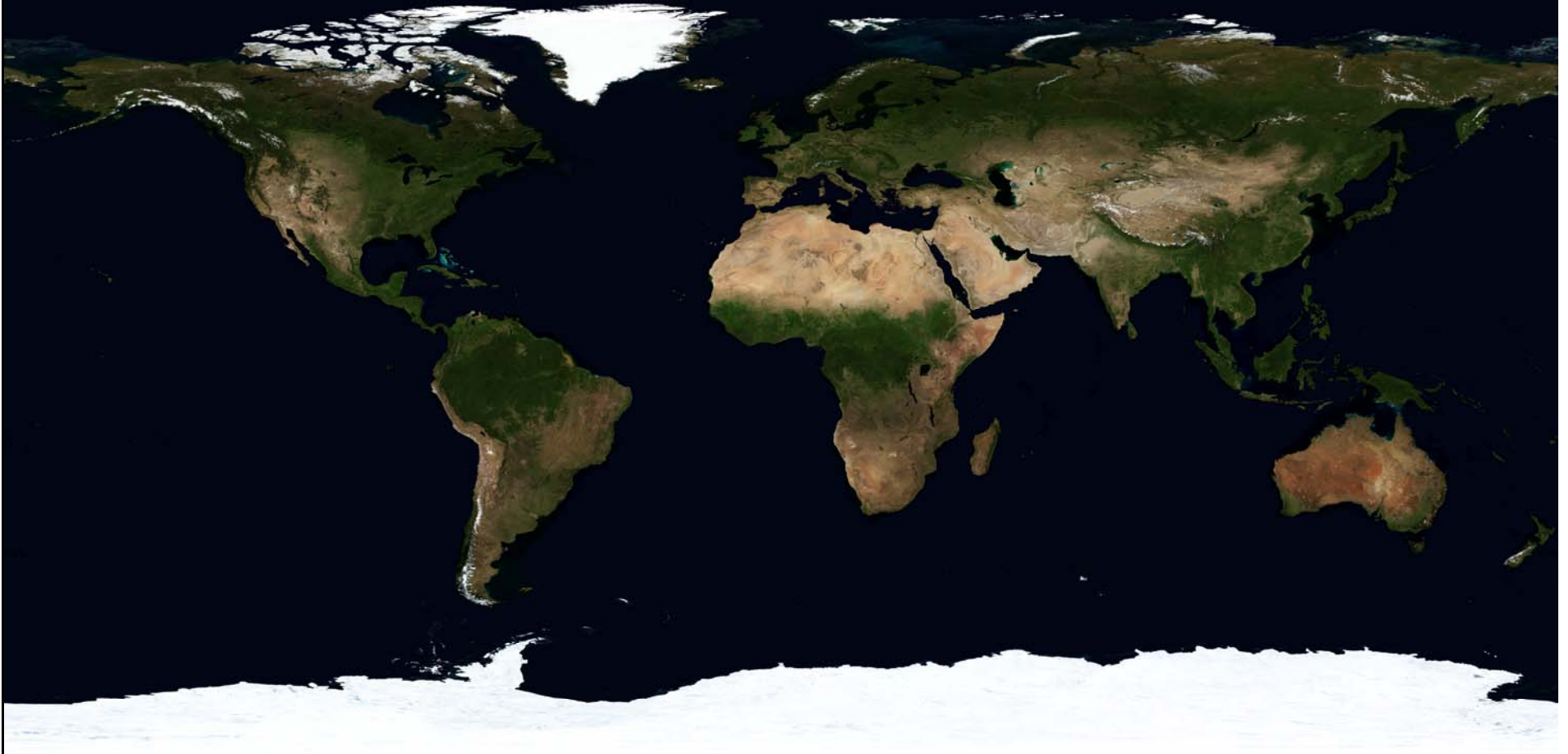
02.26.16

Outline

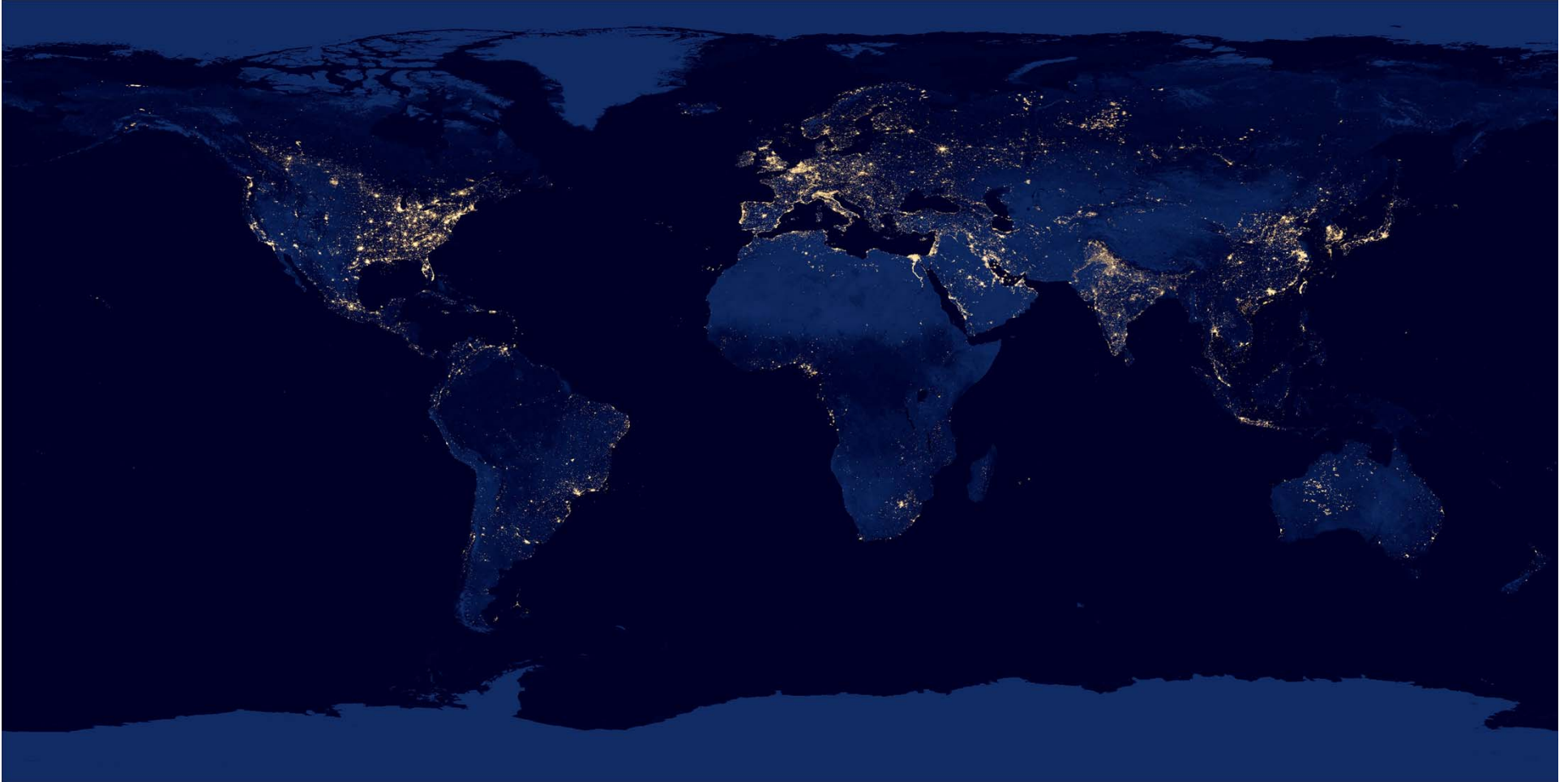
- NASA Satellite Monitoring
 - Expansion
 - Utilization
 - Zoning
- Questions



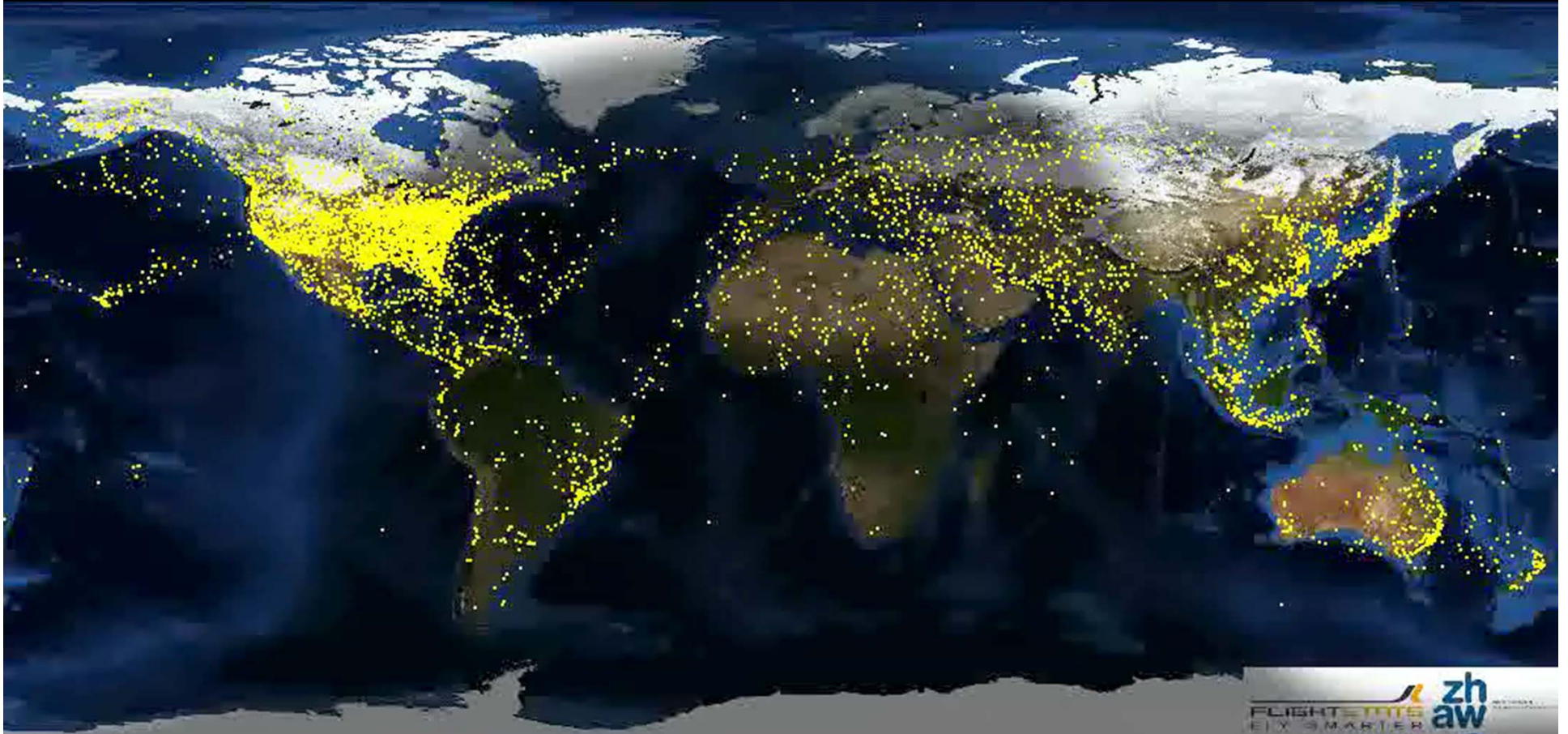
global perspective:



global insight:



global interconnectivity:

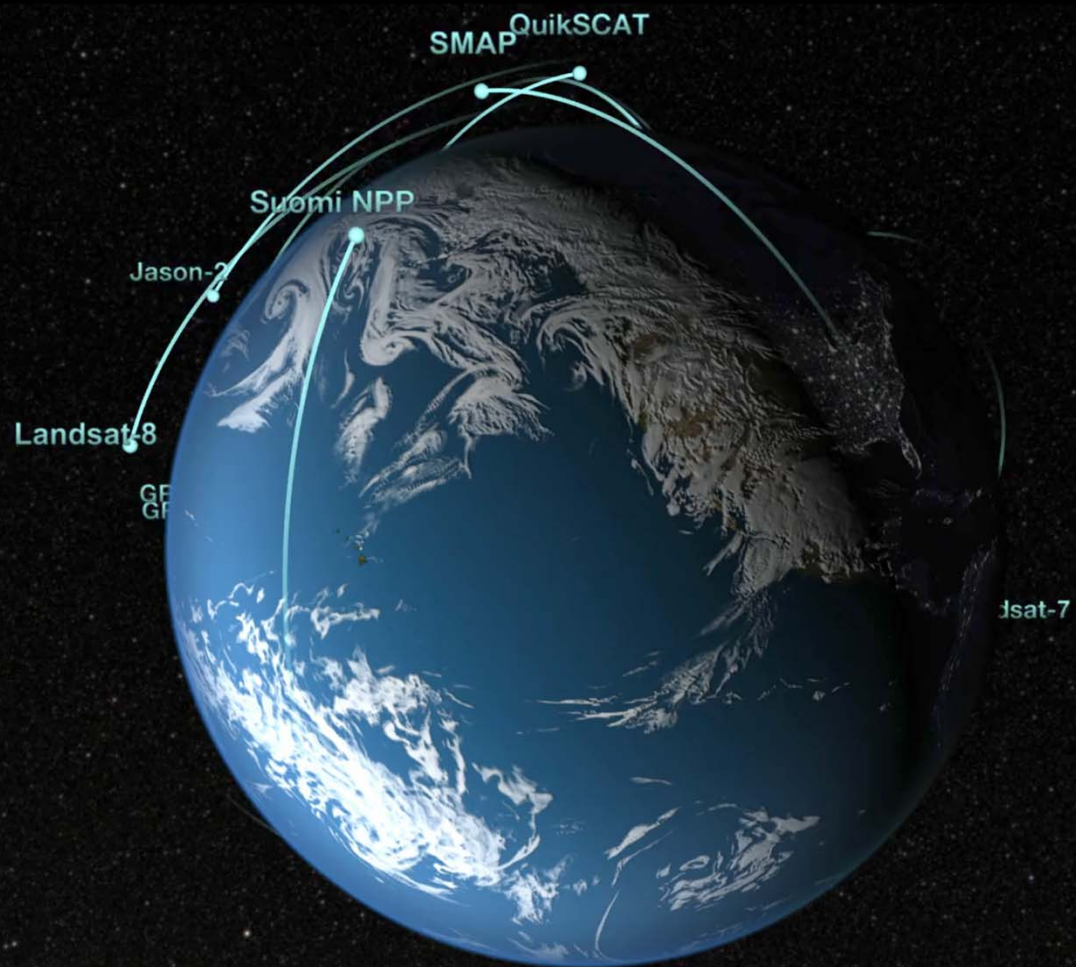


FLIGHTS INTO
EIX SMARTER
TECHNORAMA
THE SWISS
SCIENCE CENTER

zhaw
Zürcher Hochschule
für Angewandte Wissenschaften

NASA



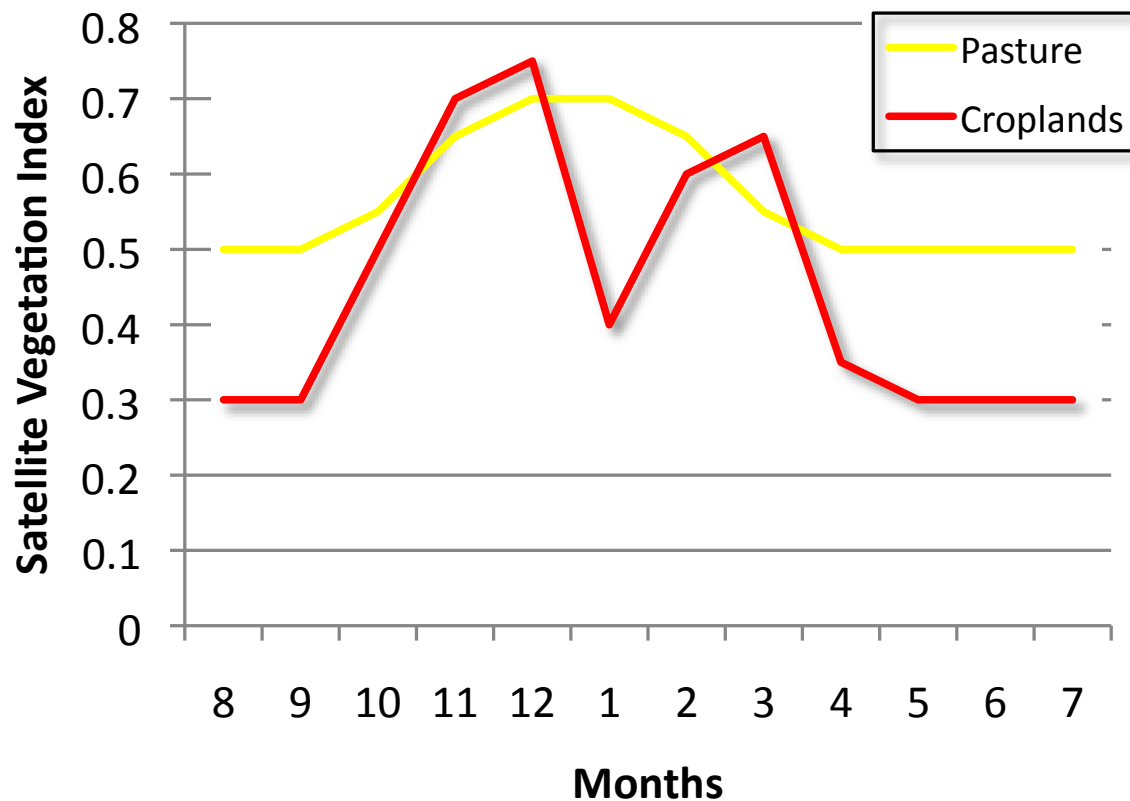


Satellite Remote Sensing of Land Use & Land Cover Change

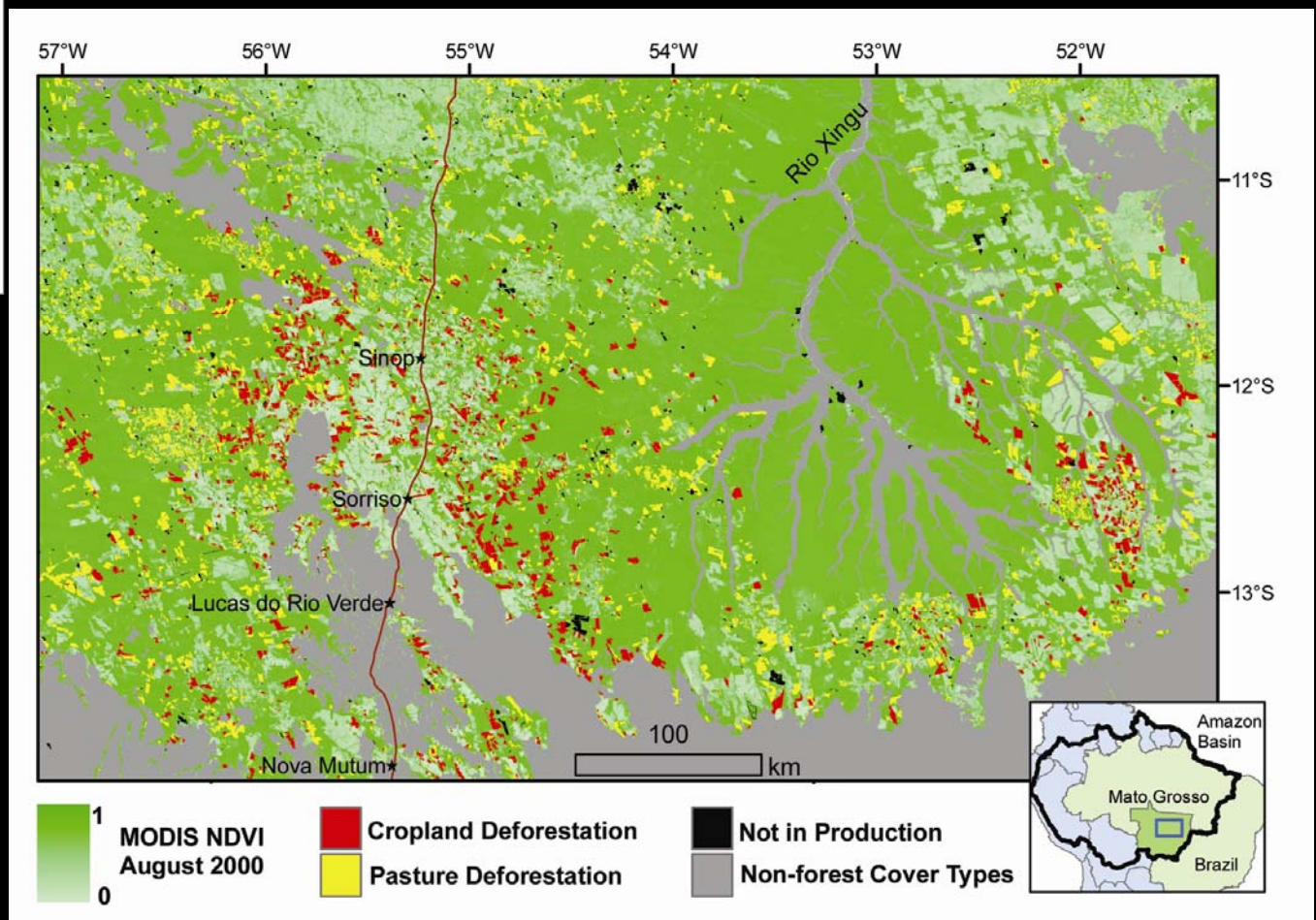
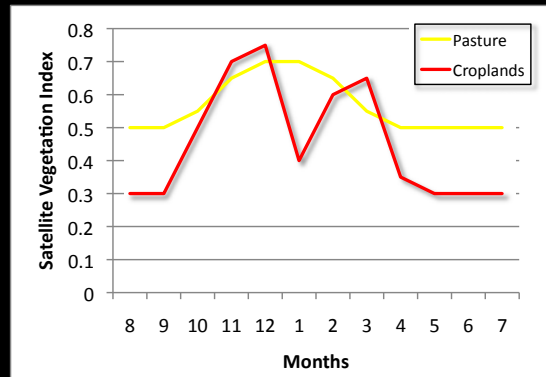
Where?	Mapping	Higher Resolution (infrequent coverage)
When?	Monitoring	Frequent Coverage (lower resolution)
Why?	Analysis	Multi-sensor studies



Why: Drivers of Recent Deforestation

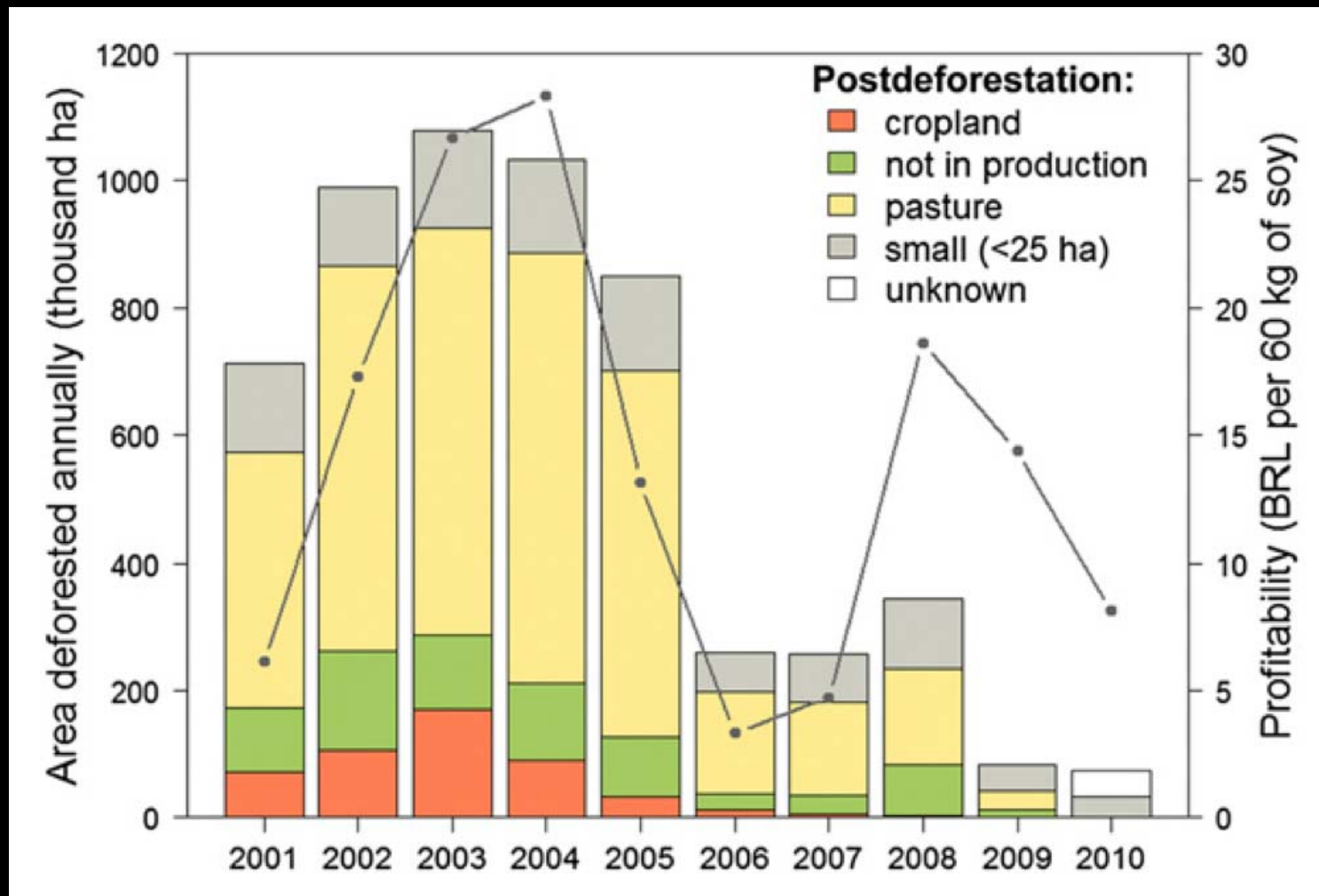


Why: Drivers of Recent Deforestation

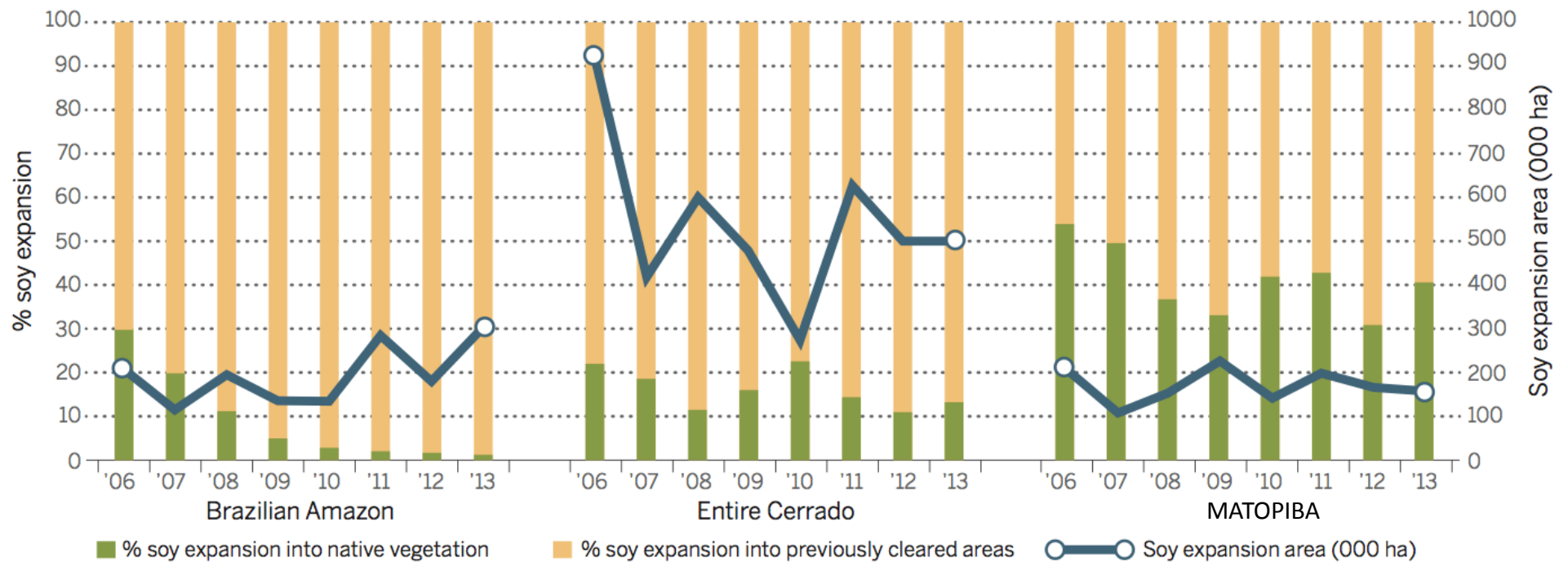


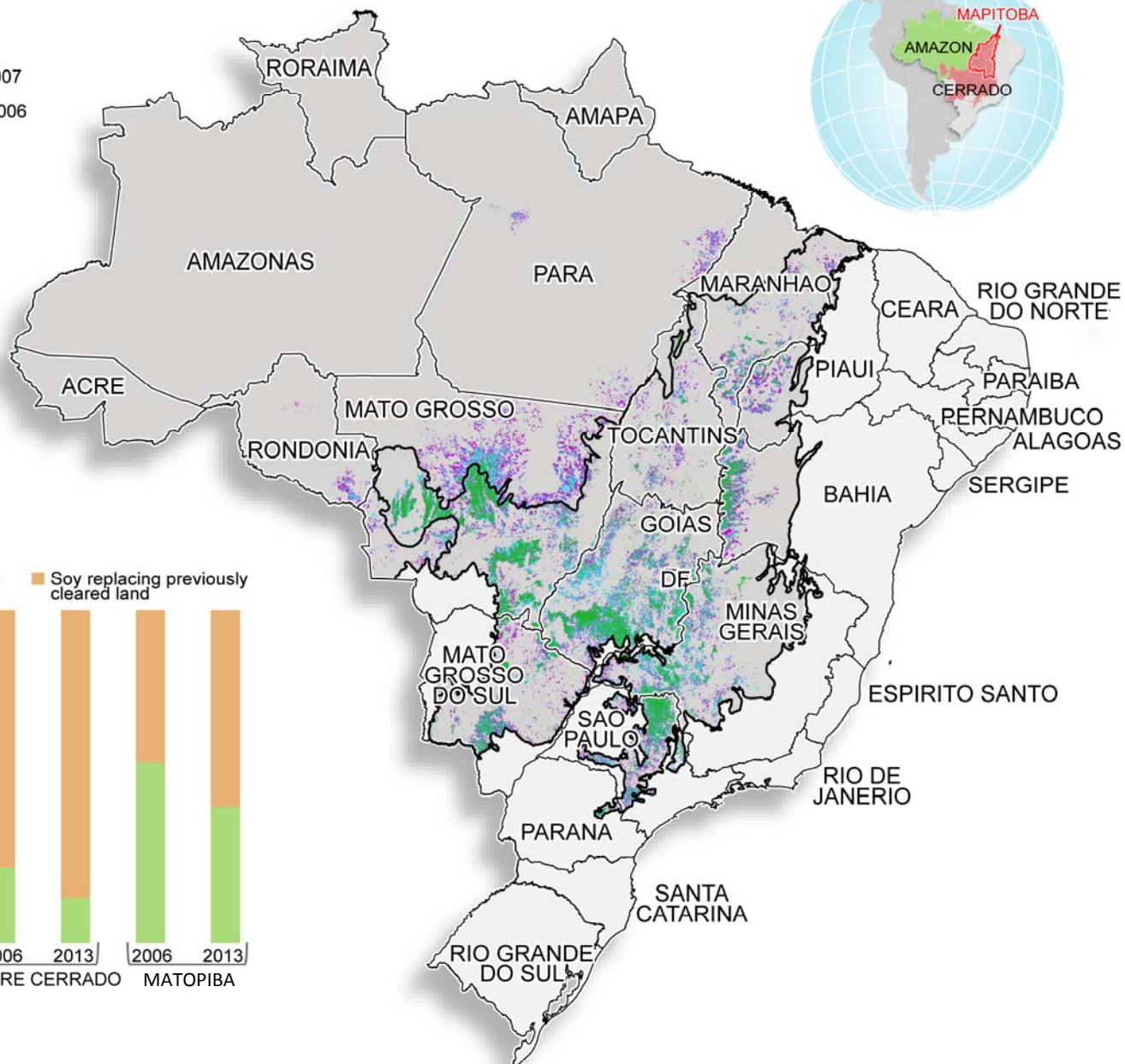
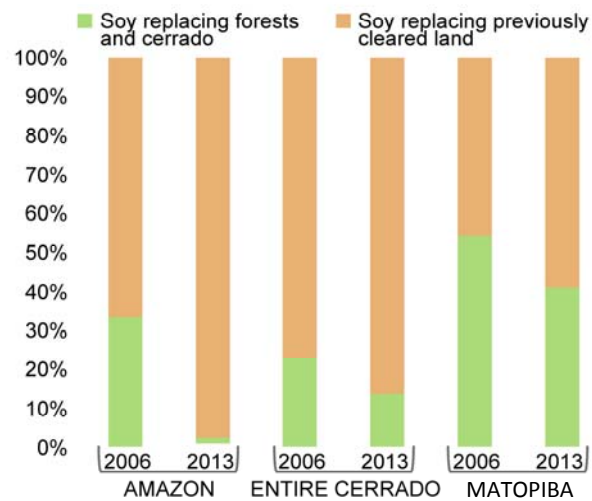
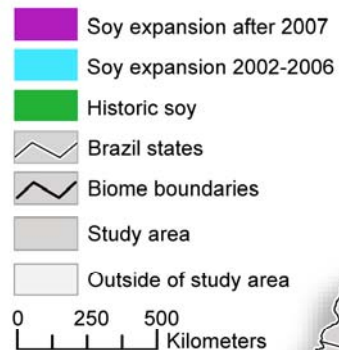
Morton et al. 2006

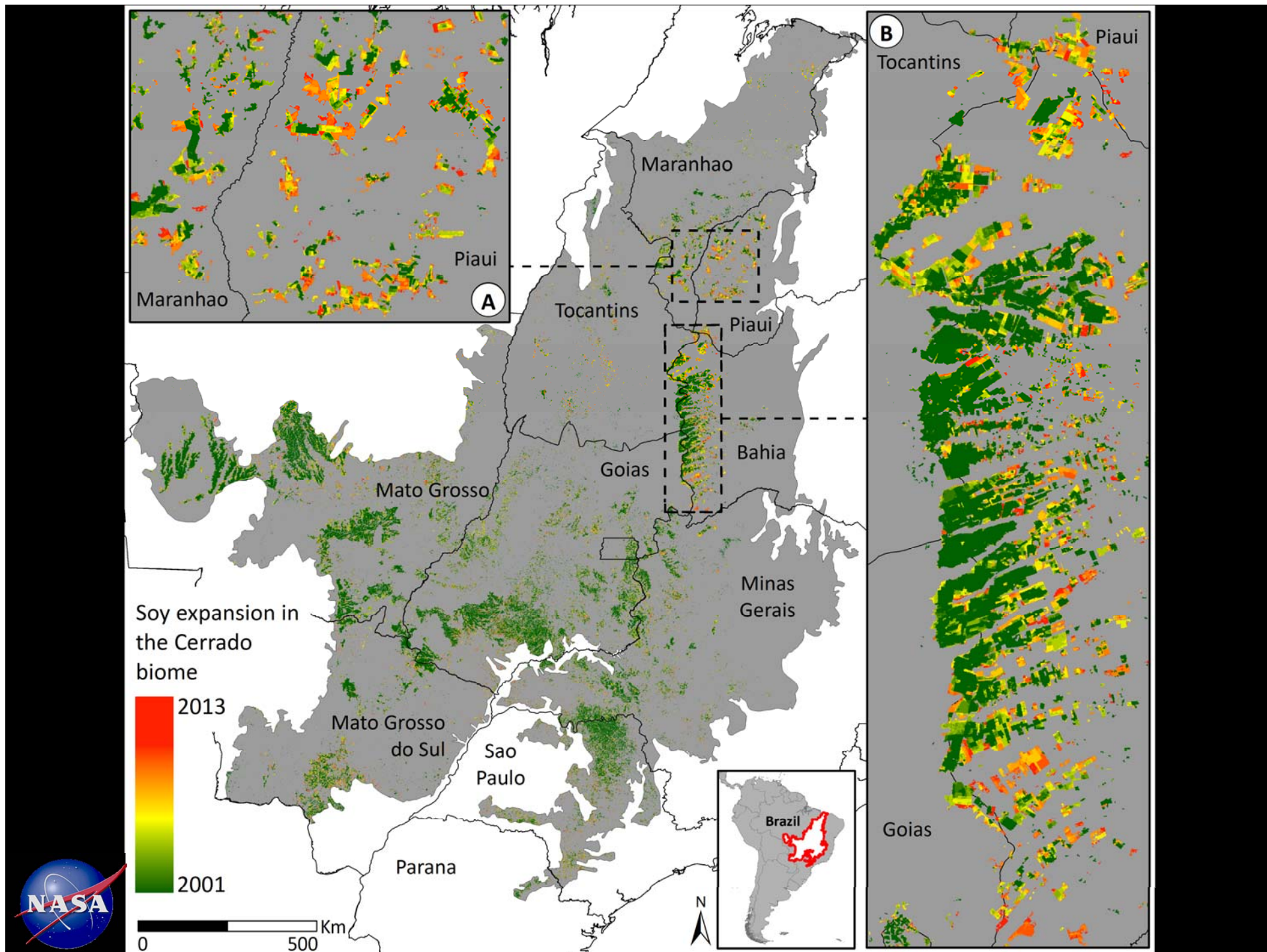
Why: Land use following deforestation

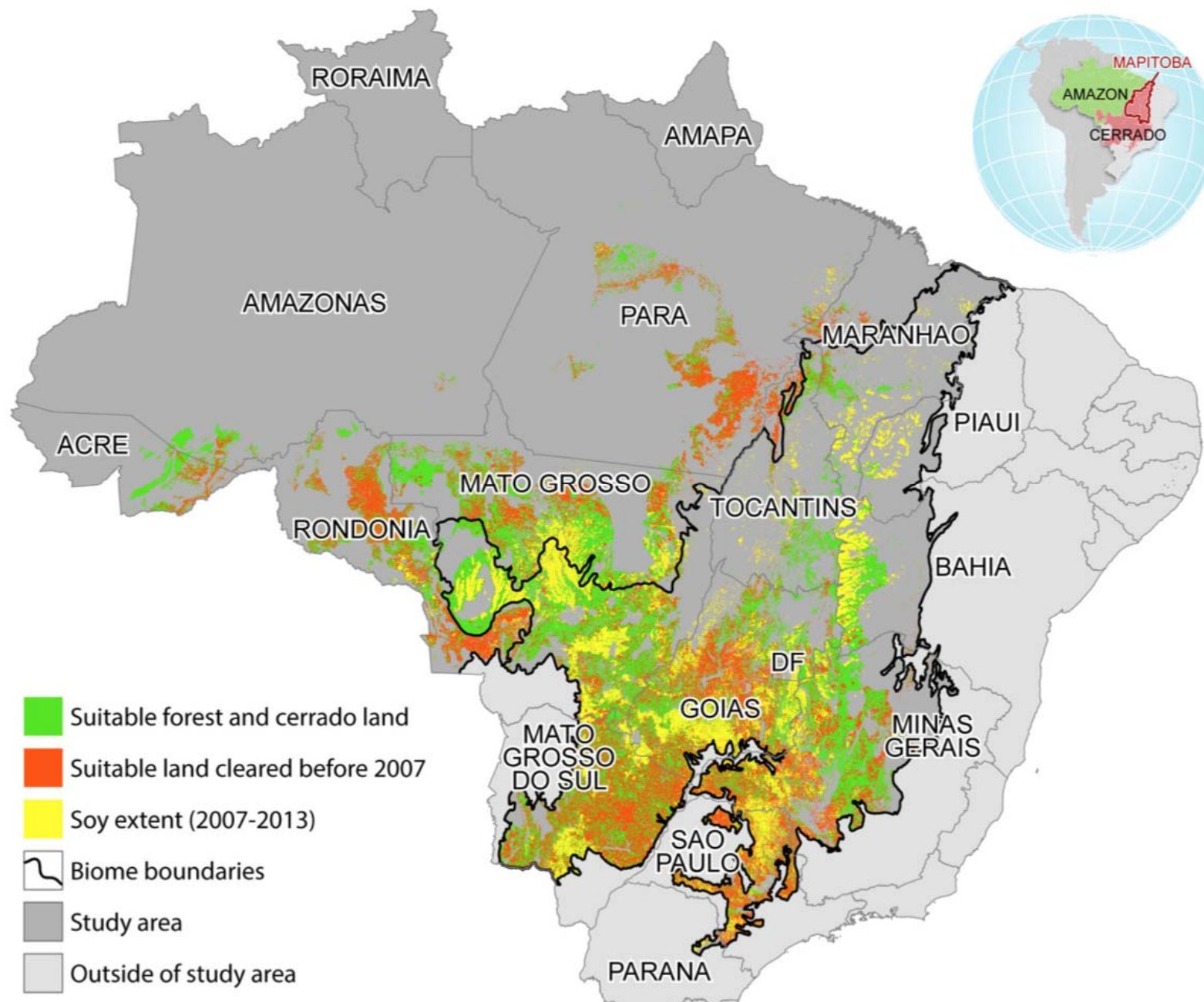


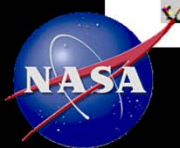
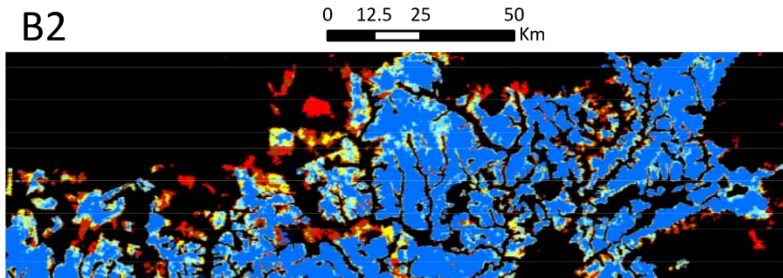
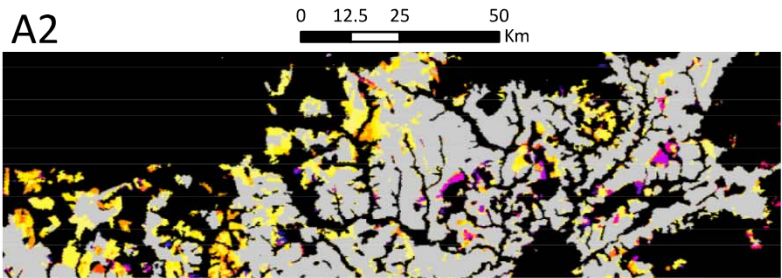
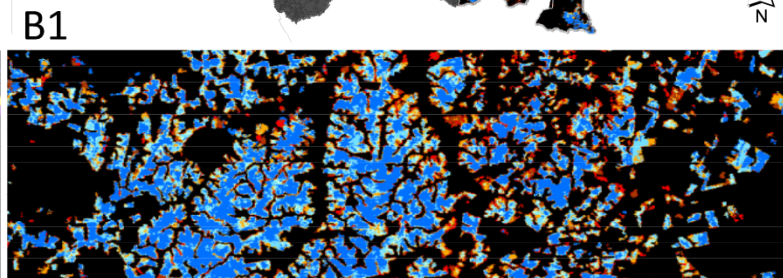
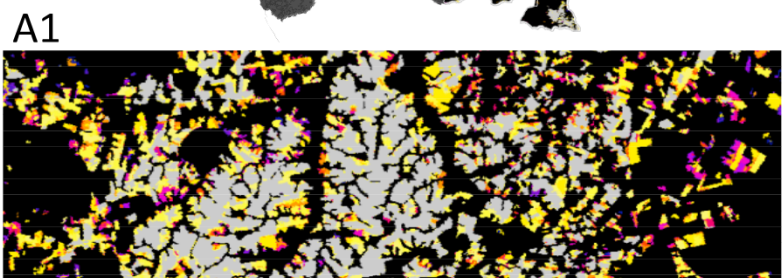
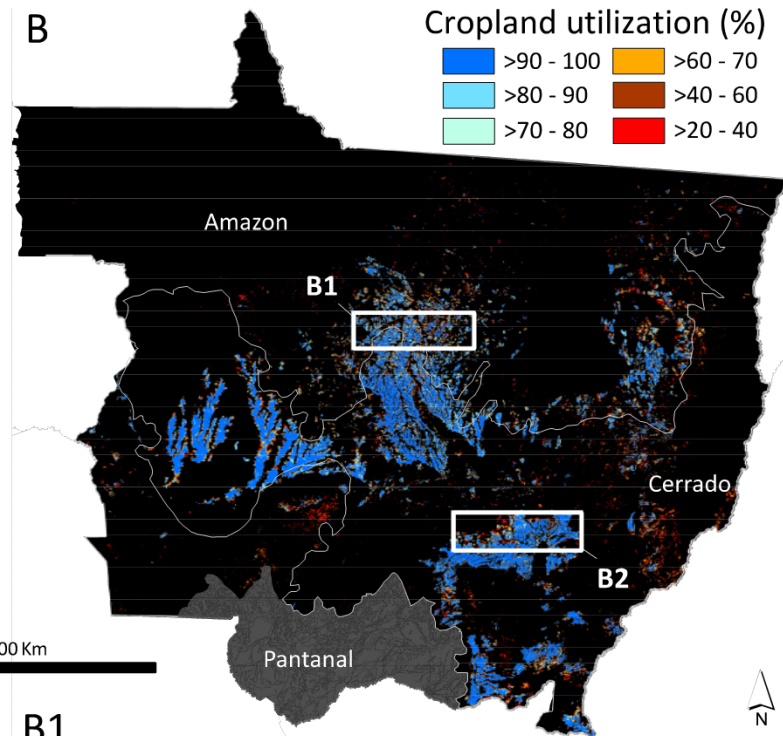
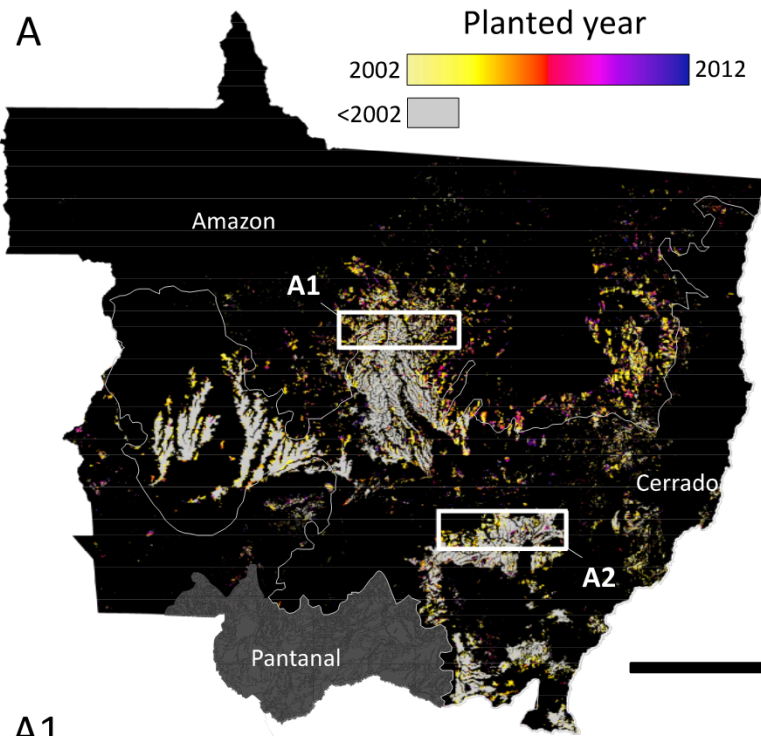
Soy Moratorium:





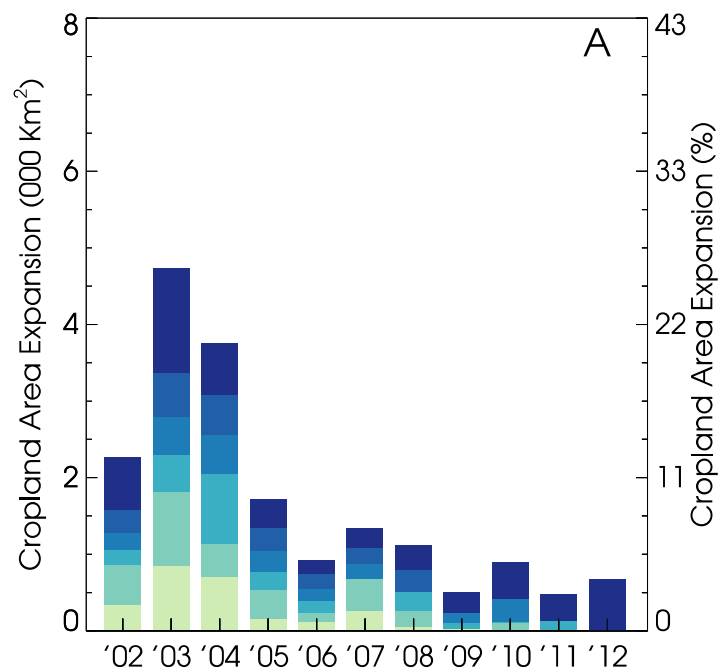








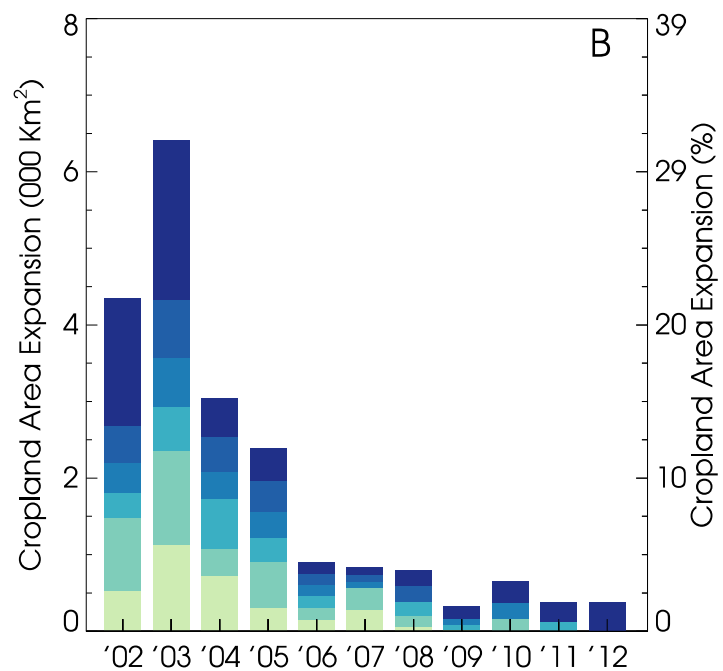
Amazon



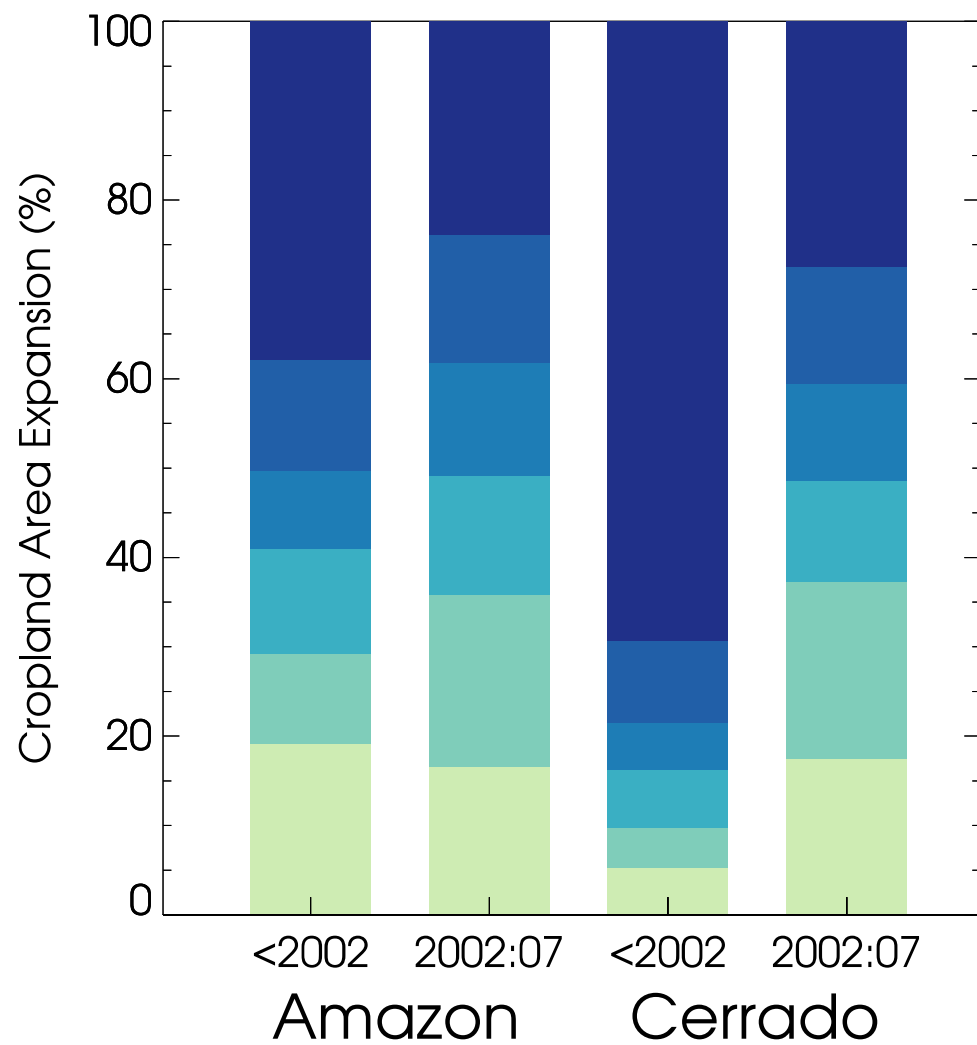
Cropland Utilization (%)

- >90-100
- >80-90
- >70-80
- >60-70
- >40-60
- >20-40

Cerrado



Morton et al., 2016



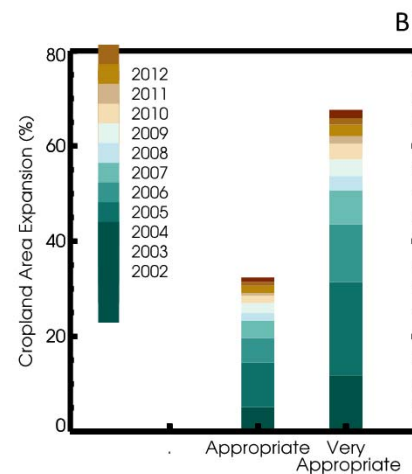
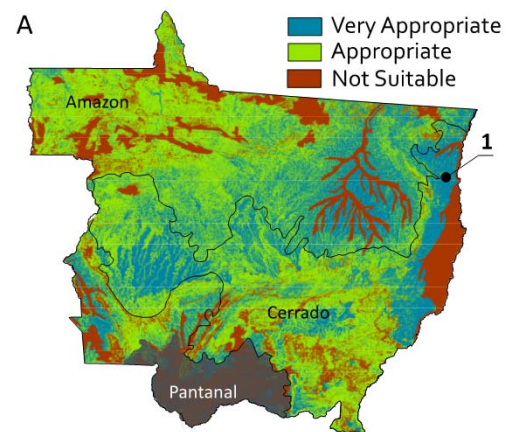
Cropland Utilization (%)

- >90-100
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- >60-70
- >40-60
- >20-40

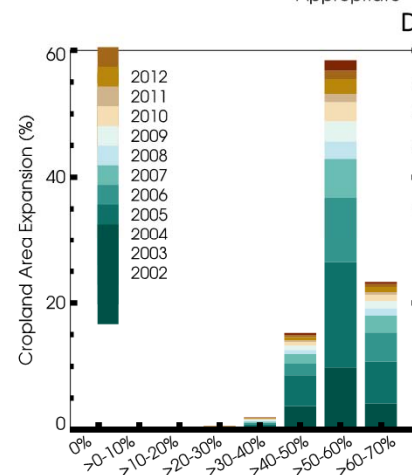
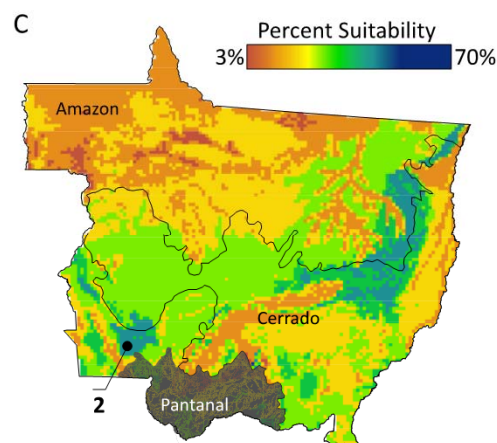




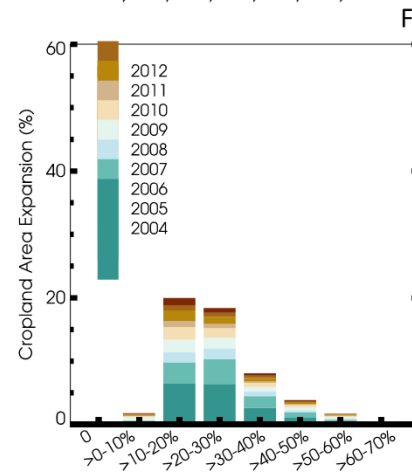
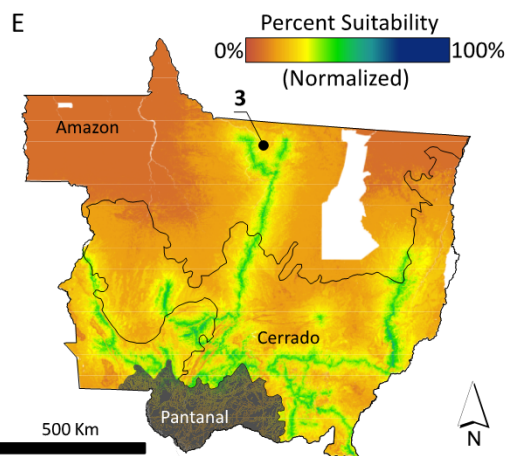
SOARES-FILHO



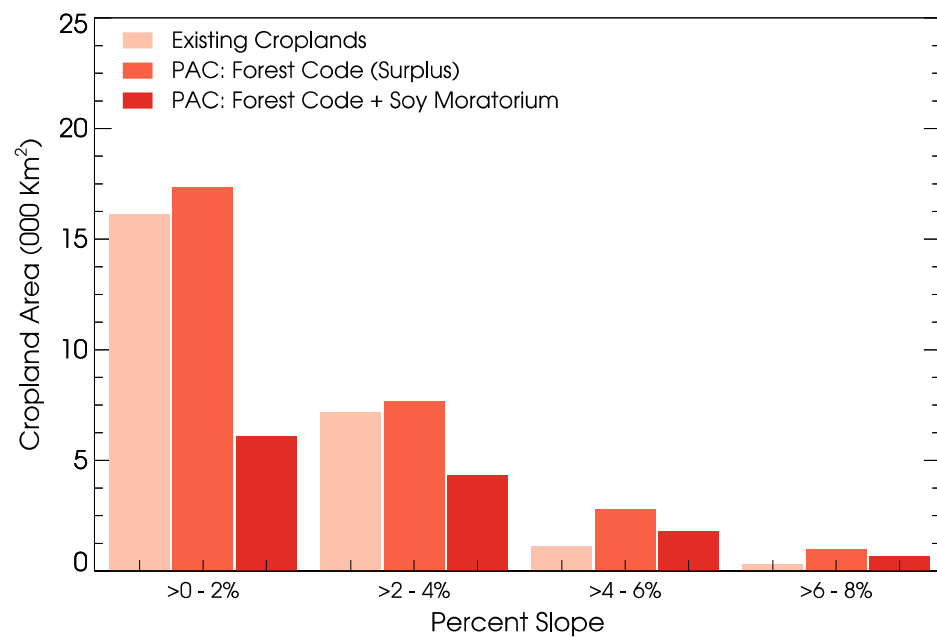
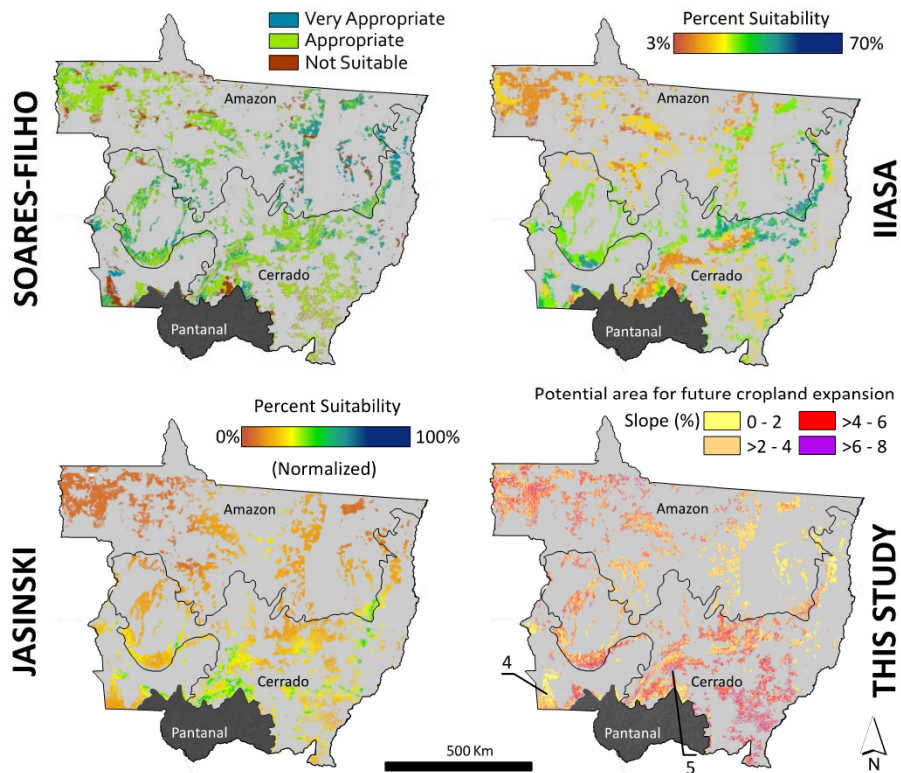
IIASA



JASINSKI



Morton et al., 2016



Conclusions

- **Satellite Monitoring:** field scale data support long-term monitoring of cropland dynamics.
- **Cropland Expansion:** regional shift from Center West to Matopiba, Amazon to Cerrado.
- **Cropping Intensity:** recent expansion had lower utilization—alternative management or lower suitability?
- **Zoning:** spatial & temporal resolution matter.



Questions?

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