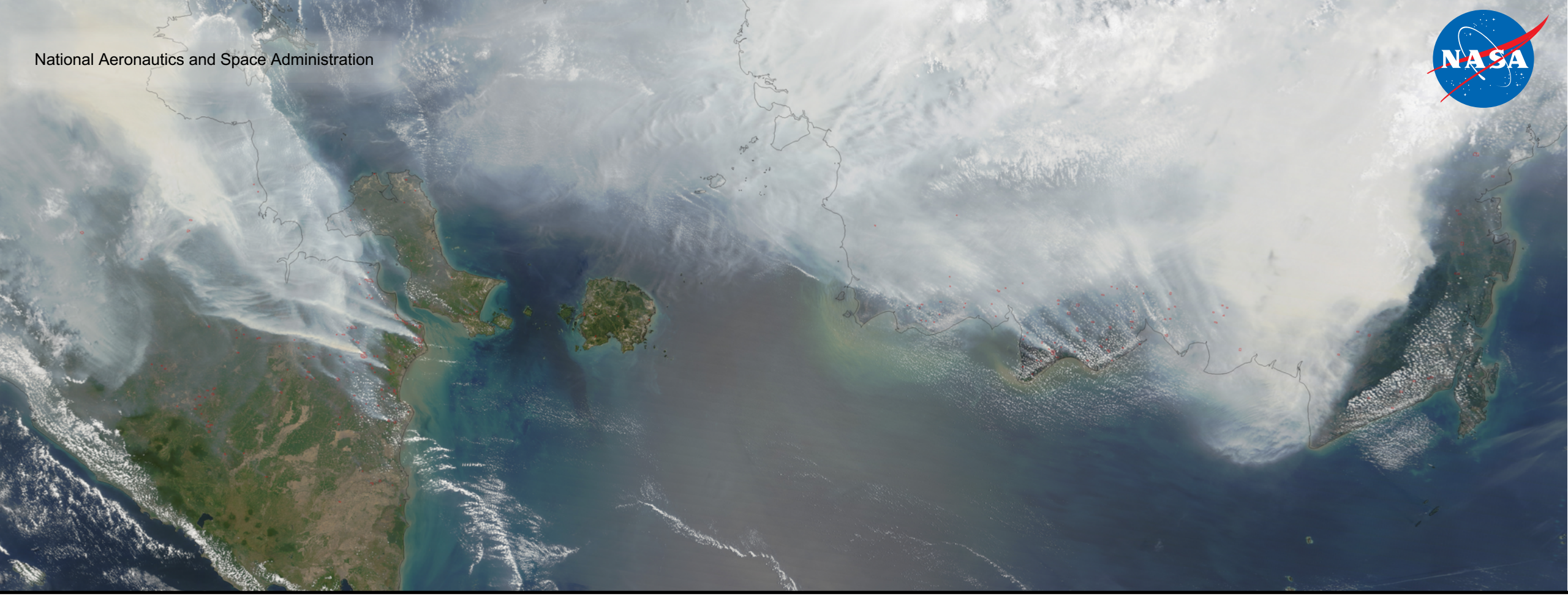
National Aeronautics and Space Administration



Satellite Data Level & Format

Pawan Gupta, Melanie Follette-Cook, and Bryan Duncan

NASA Remote Sensing for Air Quality Applications, March 20-23, 2018, Jakarta, Indonesia

Objectives

By the end of this presentation, you will be able to:

- List the different satellite data formats and levels

Data Processing Levels

L0: Raw Instrument Data

L1: Geolocated & calibrated

L2: Products derived from L1B

L3: Gridded

L4: Model output: derived variables

Harder to Use

Easier to Use

Data Levels

Orbital Data (Levels 0, 1, 2)

- More user control
- Highest spatial/temporal resolution
- Harder to use

Gridded Data Products (Levels 3, 4)

- Less user control
- Lower spatial/temporal resolution, but gridded
- May be available at multiple spatial/temporal resolutions
- More web tools available for analysis and access
- Easier to use

Aerosol Data Product Hierarchy

Level 1 Products

- Raw data with and without applied calibration
- No aerosol dataa

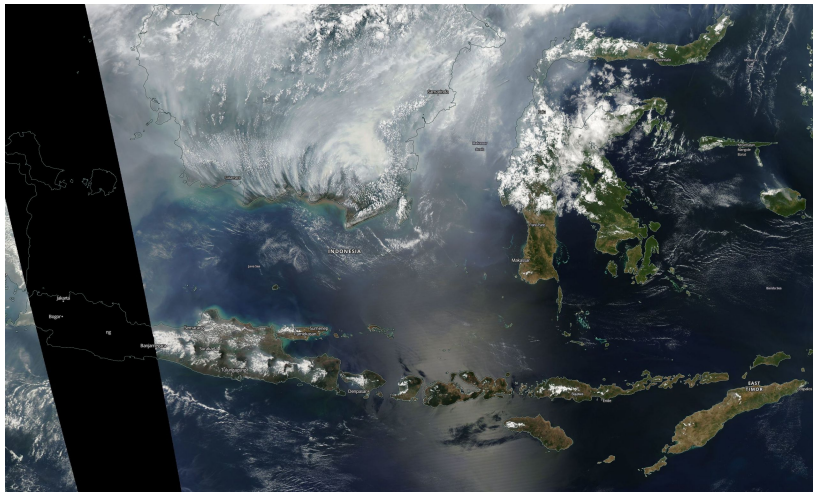
Level 2 Products

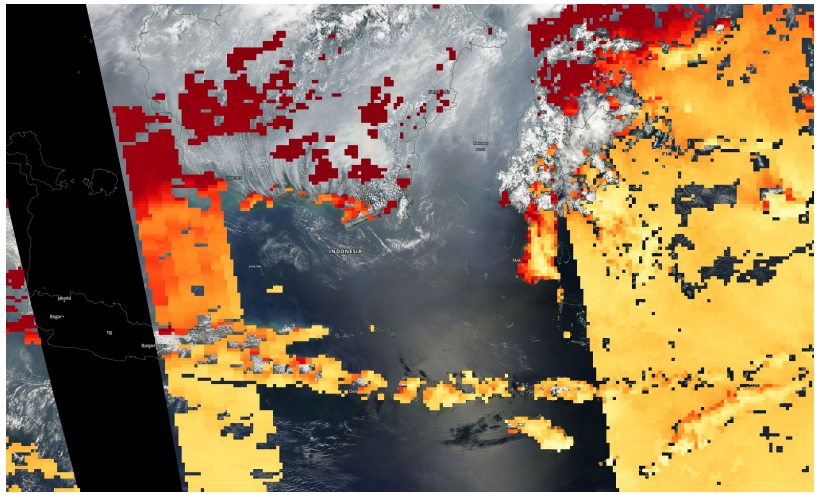
- Geophysical products
- Aerosol data

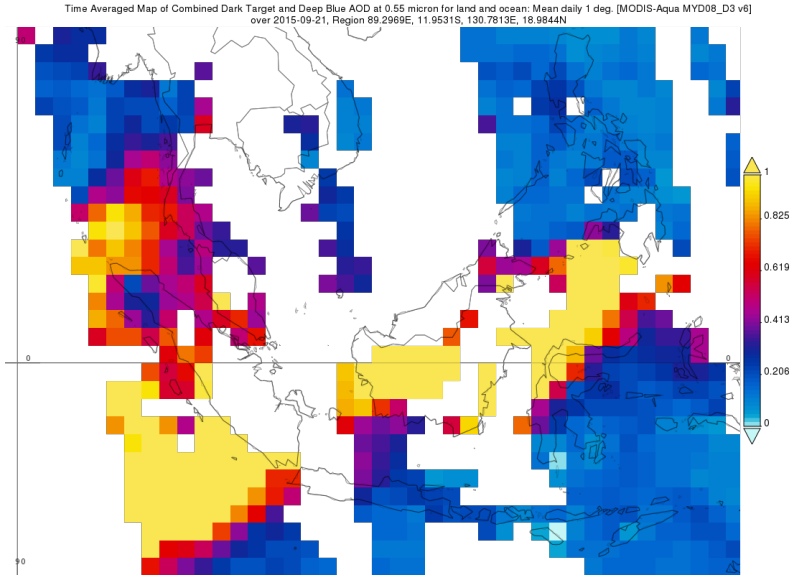
Level 3 Products

- Globally gridded geophysical products
- Aerosol data

Levels of Data







Level 1B
Calibration to Radiance

Level 2
Aerosol Retrieval Algorithm

Level 3
Spatial and Temporal Averaging

Data Formats

Text/ASCII

- Pros: easy to read and examine right away
- Cons: large data files, not always available

Binary: HDF, NetCDF, OpenDAP

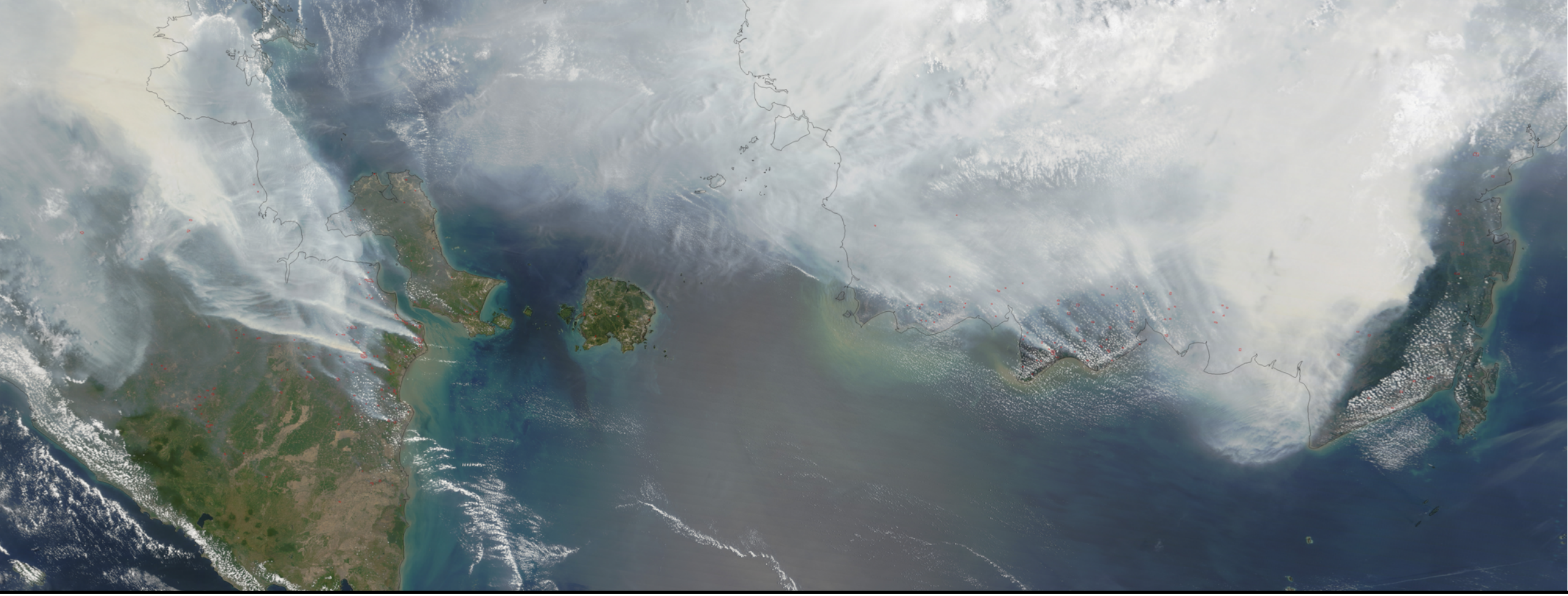
- Pros: less space, more information (metadata, SDS)
- Cons: Needs specific tools or code to read the data

KML or KMZ (zipped KML)

- Pros: easy 2D & 3D visualization of data through free tools; data files are similar in size and easier to download

Shapefile/GeoTIFF

- GIS applications
- May or may not work with open source



Questions?