OR RRA TECHNOLOGIES

Calibration and Validation of FOREST-2: Precursor for a Large Constellation of TIR Imagers

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- Wildfire Solution
 - High-level products for wildfire management
 - 21 EO TIR instruments implemented
- Goal: 30 min revisit time world-wide
 → Constellation of 100 satellites
- FOREST-1 launched in Jan. 2022
- FOREST-2 launch date: 10.06.2023
 Precursor for the constellation



Constellation first plane: production started









Detector	Uncooled microbolometer
GSD	200 m
Swath	400 km
MWIR	3.4 – 4.2 μm
LWIR1	8.1 – 9.3 μm
LWIR2	10.4 – 12.5 µm

Processing Pipeline



Raw detector frames

Detector corrections:

- Non-linearity
- Drift
- Defective pixels

Radiometric conversion:

- Offsets/Stray light
- Flat-fielding
- Gains

Geometric corrections (and georeferencing):

- Optical distortions
- Camera alignment

• ...





Gain Measurements and Dead Pixels



Number of defective pixels

Channel	CAM1	CAM2
MWIR	54	5
LWIR1	3	9
LWIR2	10	7

Noise Measurements



Scaling up to a Constellation



- Automation of calibration measurements
- Implement automated validation of L1 data
- Homogeneous calibration of the constellation
 - Lunar observations





Andrea Spichtinger Satellite Data Scientist Poster: On-Orbit Fire Detection



Diogo Rio Fernandes Lead Optics Engineer Poster: FOREST-1 Results





Julia Gottfriedsen Data Science Team Lead Poster: Superresolution