



EarthCARE 2026 Science and Validation workshop

8–12 June 2026 | Rhodes House | Oxford, UK

ESA L2 radiation and radiative closure product status

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Updates in BC baseline (ALL-3D, ACM-RT, ALL-DF)



Baseline BC was deployed on 1 December 2025 with several changes affecting the radiative transfer products

ALL-3D (Scene reconstruction)

- Optimized searching distance for the scene construction (up to 400 km).
- Potentially improve the scene construction quality for areas far from the nadir track (> 20 km).

ACM-RT (Forward radiative transfer)

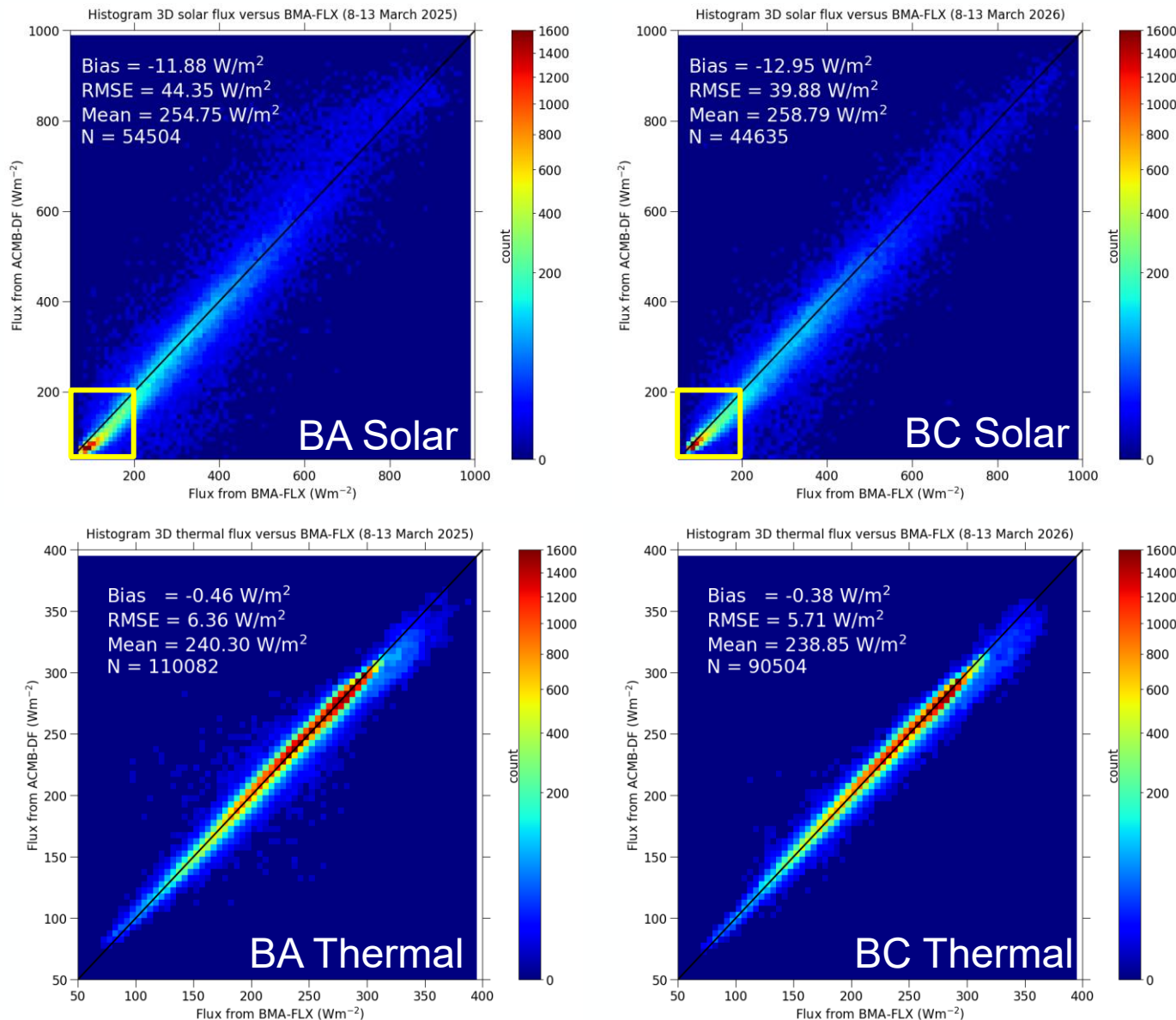
- Use “composite” (A-EBD+A-TC) inputs for aerosols and ACM-CAP for clouds
 - Previously used only ACM-CAP for both aerosols and clouds.
- Fixed treatment of sea-ice of 3D solar radiative transfer as it was being set to open water.
- “Fore” pixel level solar radiances were systematically missing last “row” of assessment domain.
 - Depending on the scene this fix could increase the radiance up to 5%.
- Code sped up by roughly factor of 4.

ALL-DF (Radiative closure)

- No changes relative to BA baseline

[Data disclaimers](#)

BA versus BC baseline closure



- All assessment domains between 60S and 60N
- BA baseline uses 8-13 March **2025**
- BC baseline uses 8-13 March **2026**

Solar Closure

- Slight increase in mean bias, reduced RMSE
- For fluxes < 200 W/m²
 - Bias from -17.5 W/m² to -10 W/m²
 - RMSE from 24.5 W/m² to 20 W/m²
 - Expected given changes in BC baseline

Thermal Closure

- Continues to agree well
- Little change between BA and BC

Presentation by Carla Salas Molar on Wednesday will have additional results

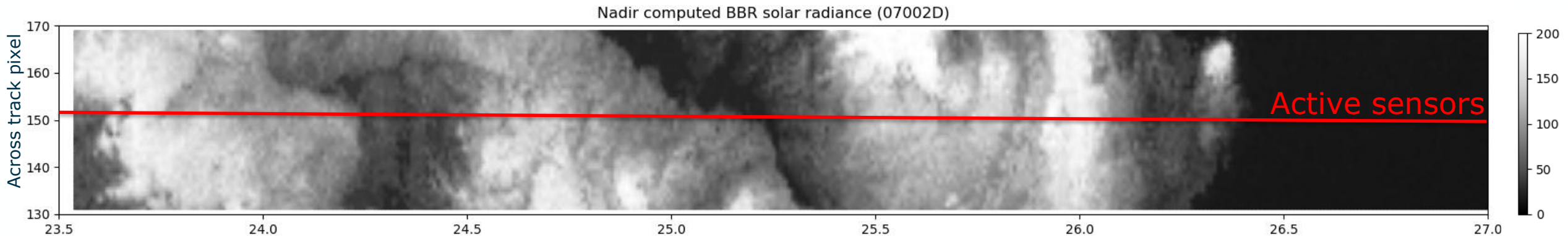
Updates for CA baseline



Several changes planned for CA baseline

ACM-RT (Forward radiative transfer)

- Update treatment of land surface scattering, moving from Lambertian to Ross-Thick Li-Sparse BRDF
 - Using climatology from MODIS, already using MODIS to set land albedo
- Add stratospheric aerosols to radiative transfer (sulphate aerosols and stratospheric smoke)
- Radiative transfer calculations using composite retrievals
- Quality status and flag updates
- Add pixel level radiance output to code, evaluate potential and configuration for operational product



ALL-DF (Radiative closure)

- Update algorithm to match BMA-FLX radiance to flux conversion algorithm
- Add composite retrievals to radiative closure