

Heliosat-3

Benefits for Climate Community

R.W. Mueller

CM-SAF, Deutscher Wetterdienst



Meteo
Swiss





Overview



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- Precondition for a valuable radiation budget is the accurate calculation of global irradiance.
- MSG allows the retrieval of radiation budget in high space-time resolution.
 - ▶ High resolution is needed for a better understanding of climate dynamics.
 - ▶ More appropriate for regional climate monitoring than polar orbiting satellites (e.g. NOAA-AVHRR series).



Overview



- Importance of satellite derived data.
 - ▶ Monitoring of trends and anomalies
 - ▶ Verification of climate models.
 - in high space-time resolution and with a large coverage.



Benefits for the climate community



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 - ▶ for the climate branch of Heliosat-3.
 - ▶ for additional climate monitoring products (PAR, Daylight, H2O, clouds, O3).
 - ▶ for solar energy applications.

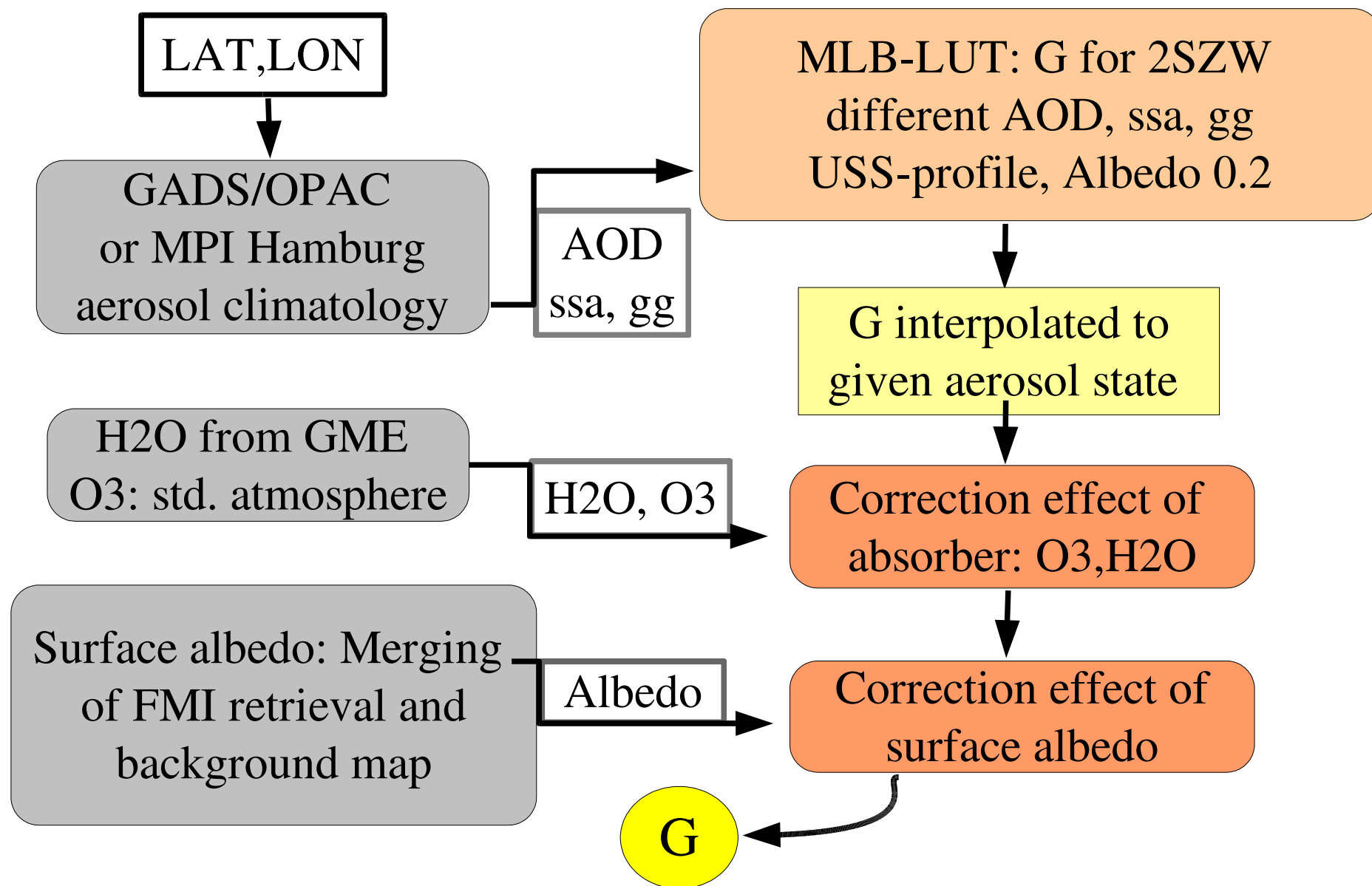


Details Benefits



- Discussion with other groups helps to improve the algorithms and the atmospheric input data.

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- Improvements gained from development of the algorithm can be adapted.
 - ▶ Example: adaptation of MLB approach for the calculation of LUTs.





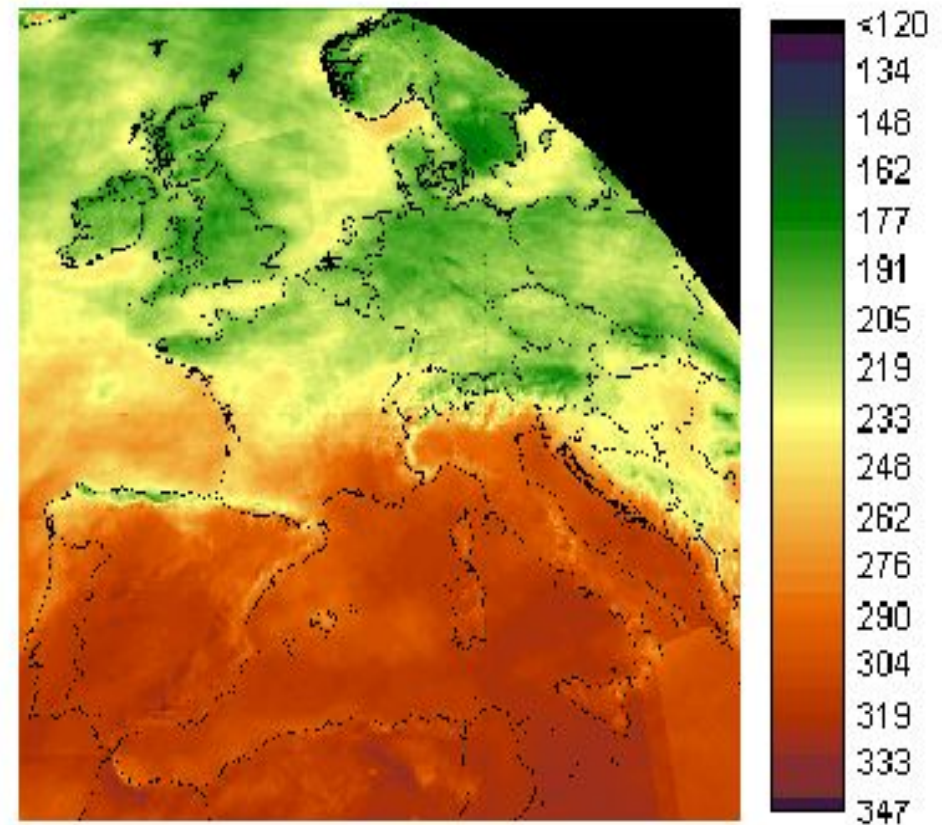
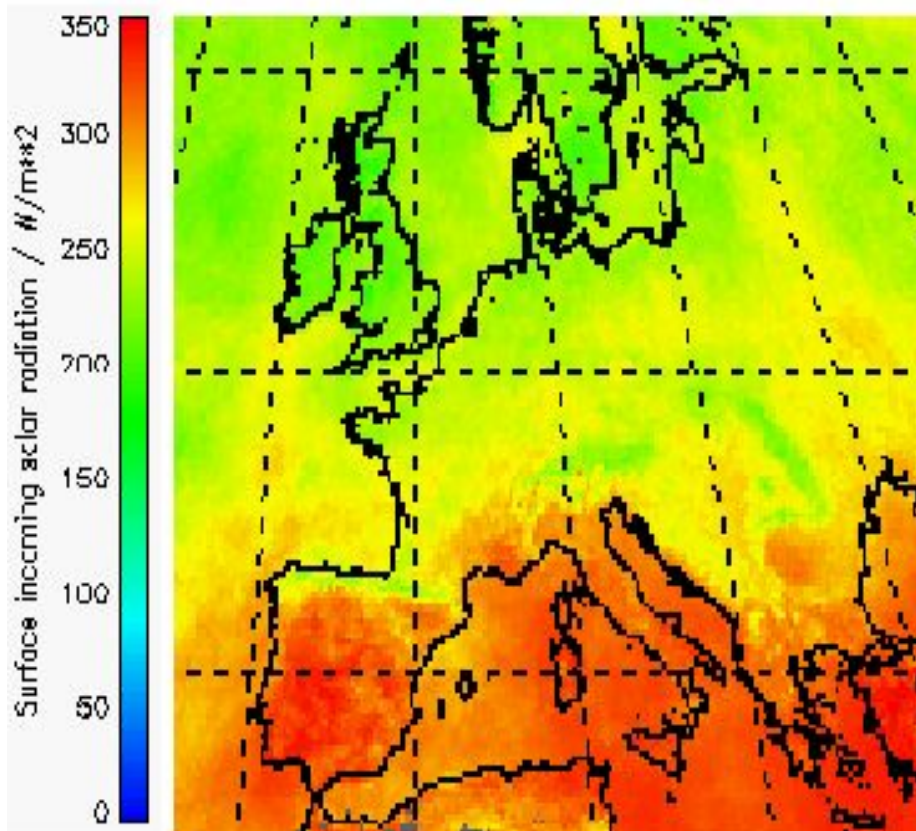
Details Benefits



- Comparison of data products helps to improve the quality of the irradiance product.
 - ▶ Example CM-SAF – Heliosat comparison.

Example Comparison

Monthly mean G for 2004,07; left hand side G derived from AVHRR (CM-SAF), right hand side G derived from Meteosat with Heliosat (EHF)





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- In order to make a more extensive intercomparison the Heliosat method will be implemented at DWD.
- *All listed indirect benefits improves or can improve the quality of the irradiance product.*



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 - Water vapour:
 - ▶ Key parameter for SDL.



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 - Clouds and Aerosols:
 - ▶ Effects radiation.
 - ▶ Impact on green-house effect.



CM-SAF user workshop



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 - train the user in the use of the CM-SAF products.



Products CM-SAF



● Products:

- **SOL**: surface outgoing long-wave
- **SDL**: surface downwelling long-wave

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- **Cloud and water vapour products**



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- Data is free available via our WUI:
 - ▶ http://orias.dwd.de/saf_wui/wui
 - ▶ <http://www.cmsaf.dwd.de>

Cloudy-sky traditional LUT

