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▶ To cite this version:
Claire Thomas, Lucien Wald, Etienne Wey, Laurent Saboret, Philippe Blanc. HelioClim-4, or how to build a successful and sustainable business service based on CAMS radiation service. 4th International Conference on Energy & Meteorology (ICEM), Jun 2017, Bari, Italy. 2017. hal-01556572

HAL Id: hal-01556572
https://hal-mines-paristech.archives-ouvertes.fr/hal-01556572
Submitted on 5 Jul 2017

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HelioClim-4, a successful and sustainable business service based on CAMS radiation service

**HelioClim-3 version 5**
an example of successful take-up of a Copernicus service by the SoDa team

- **CAMS McClear**
- Combined with **HelioClim-3 (HC3)**
- **HelioClim-3 version 5 (HC3v5)**

Outperforms all previous versions
- More than 60 annual subscriptions (for pay)
- More than 1400 requests per week in 2017

**HelioClim-4 (HC4) = CAMS radiation enhanced with several value-added post-processing layers**

**Horizon**
- CAMS radiation components are horizon free data (gray + yellow values).
- HC4 proposes an option to take into account (yellow values + a fraction of gray values) the shadowing effect due to the far horizon computed from SRTM

**Evaluation of the performance**
- 18 stations (hourly data) => 4 groups (A, B, C, D):
  - 17 non-shadowed pyranometers (pyr.) measuring Global Tilted Irradiation (GTI) 25° South => evaluate the performance of fix-tilted data in HC4
  - 1 pyr. measuring GHI with a discriminant horizon => horizon

Statistical results (bias in %, Standard Deviation STD in %, Root Mean Square Error RMSE in % and Correlation Coefficient CC) are provided for both HC4 **CASE 1** and **CASE 2**, and for HC3v5

**Conclusions**
- HC4 is fairly close to HC3v5 in most cases
- HC4 Case 1 returns better results than Case 2: the use of an empirical algorithm should be avoided
- Improvement when horizon is taken into account

**Perspectives**
- Reliable precursor of service
- Further development: e.g. modulate HC4 value with the height of the selected point inside a Meteosat pixel