

## HelioClim-4, or how to build a successful and sustainable business service based on CAMS radiation service

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Copernicus is the European Earth observation program which provides many valuable atmospheric variables for solar resource assessment via the Copernicus Atmospheric Monitoring Service (CAMS). Our company, Transvalor, has contributed to the development of CAMS McClear and CAMS radiation services. We are currently involved in their operational phases, providing robust and reliable data access via the CAMS website ([solar.atmosphere.copernicus.eu](http://solar.atmosphere.copernicus.eu)) as well our SoDa website ([www.soda-pro.com](http://www.soda-pro.com), Fig.1).

Part of the business of Transvalor consists in selling data on solar resource. The objective of this communication is to show how Transvalor benefits from the CAMS products.

Two years ago, Transvalor proved its capability in building a sustainable service through Copernicus products. The most recent version of our commercial product on solar radiation, HelioClim-3 (HC3, v.5), uses the CAMS McClear service providing solar radiation in cloud-free conditions to provide radiation for any conditions. This product outperforms all previous HC3 versions.

The new product, HelioClim-4 (HC4), is another example of a successful take-up of Copernicus products towards industry. HC4 directly benefits from the CAMS radiation service, and in return, CAMS prospers from increasing access to HC4 by users and increasing visibility of its original product. Furthermore, HC4 proved to be an alternative opportunity to collect feedbacks on CAMS radiation service data, via the CAMS 94 project, in which Transvalor is also involved.

The method to build and design HC4 is based on the HC3 widely adopted format. Currently more than fifty annual subscriptions and tens of on-delivery value-added services are based on this resource, confirming ability of HC3 to fulfill commercial and sustainable application requirements. Our developments are constantly adapted to accommodate prospective improvements, while maintaining the popular HC3 format and data type. The new HC4 product brings two major innovations compared to the CAMS radiation service. It provides the radiation components over a fix-tilted plane, and is capable of taking into account the shadowing effect from the far horizon computed from the Digital Elevation Model Shuttle Radar Topography Mission (SRTM).

These functionalities meet the expressed needs of users in solar energy. The quality of the HC4 retrieval has been assessed against in-situ measurements from eight Turkish stations (tilted 5° southward) and two French stations, each equipped with several in-plane pyranometers and are presented in this communication.

This communication provides an insight to a new product HelioClim-4 in solar energy, a successful derivative of the CAMS radiation service brought to the business sector by Transvalor, broadening its panel of services. The widely assimilated HelioClim-3 format is conserved in HelioClim-4 to ease user uptake and benefits directly from HelioClim-3 improvements and value-added services. Validation results demonstrated the capability of HelioClim-4 to provide reliable information for commercial applications.

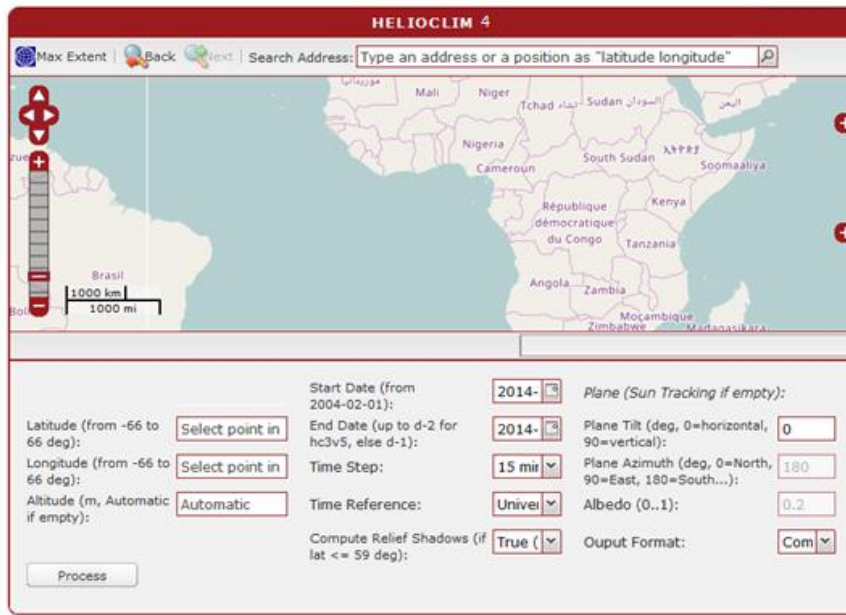


Fig. 1. Illustration of HelioClim-4 interface on the SoDa website.