

Monthly solar radiation in the tropical Atlantic Ocean: Can its spatial variations be captured by the current configuration of the PIRATA moorings?

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Variable : Sea Surface Irradiance

For a good representation of climate system, I need irradiance data are needed with :

High quality

High temporal resolution

High spatial resolution

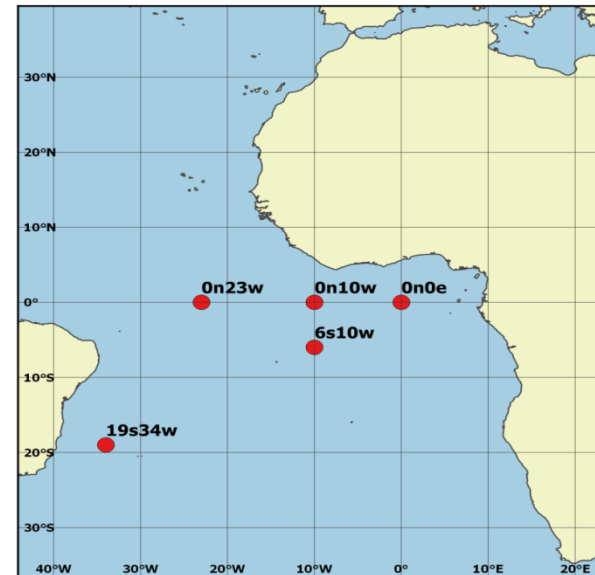
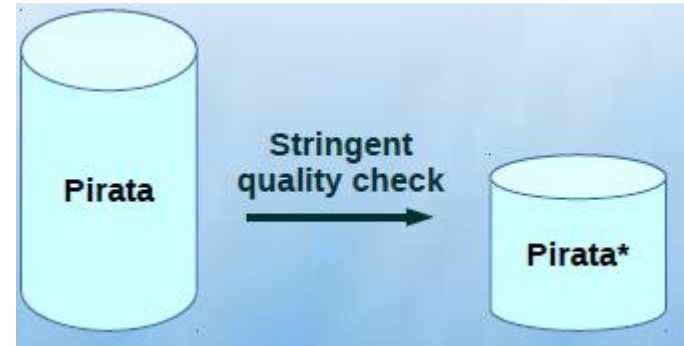
Can spatial variations of sea surface irradiance be captured by the current configuration of the PIRATA moorings?

Comparison of several datasets with PIRATA measurements



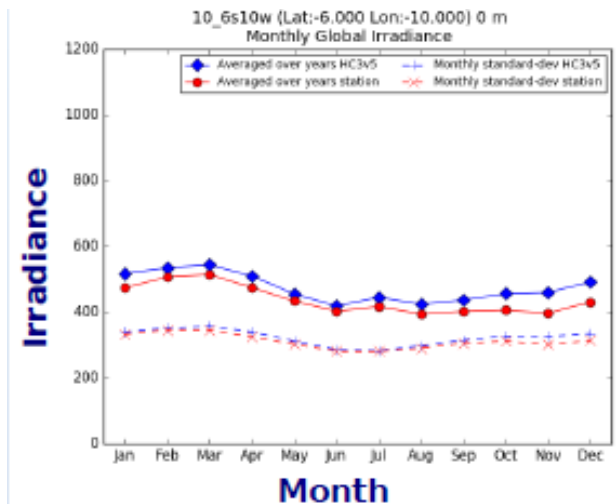
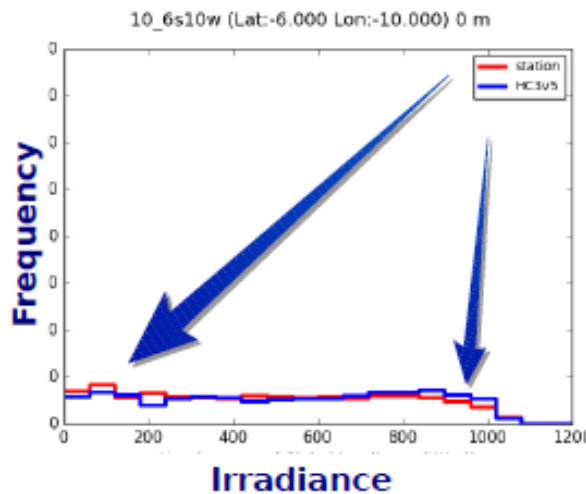
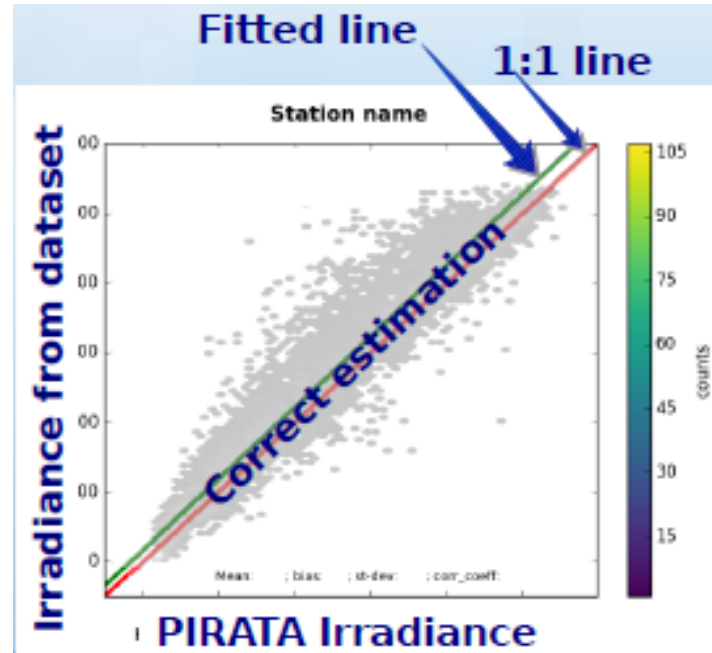
hourly
2012-2013

PIRATA dataset



3 Satellite-derived datasets
2 Re-analysis datasets

Comparison of several datasets with PIRATA measurements



PIRATA network's coverage of the spatial variations of sea surface irradiance with PIRATA measurements ¹

17 buoys

**If I cut the Atlantic Ocean in 17
do I have one buoy by slide?**

PIRATA network's coverage of the spatial variations of sea surface irradiance with PIRATA measurements ¹

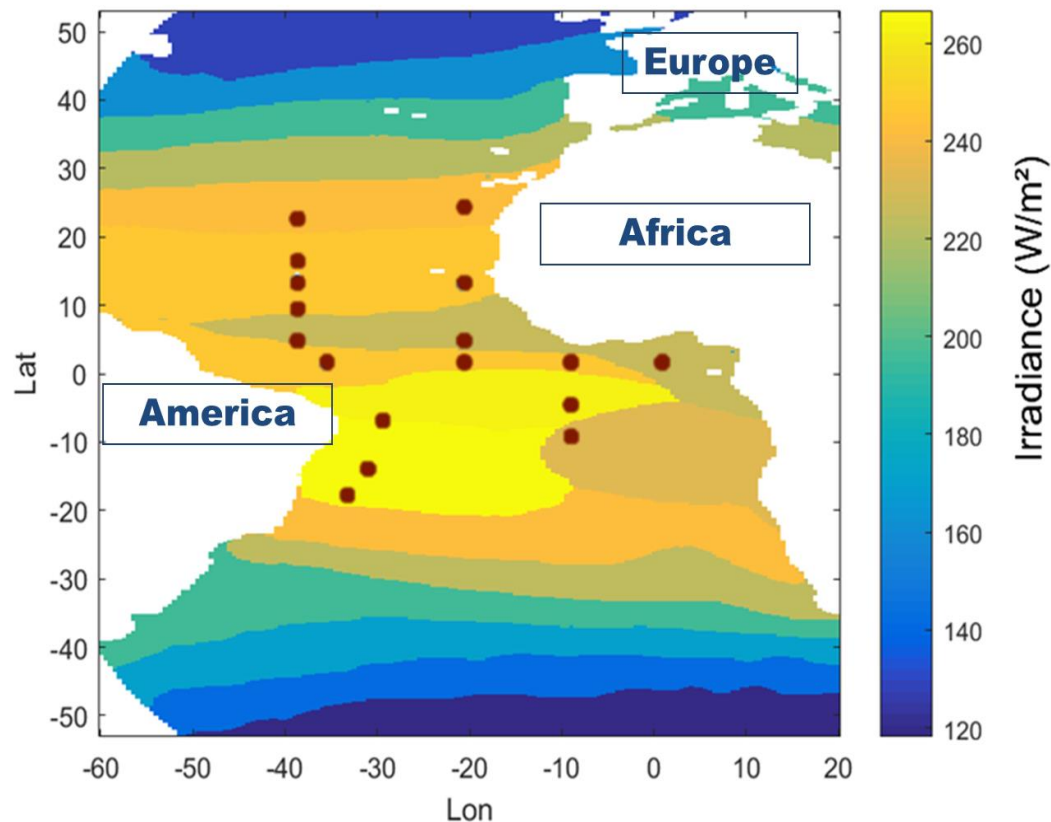
HC3 v5 dataset

Monthly mean on 13 years of:
Irradiance
Standard deviation

K-mean cluster analysis :
17 classes

Mapping

Same analysis with clearness
index

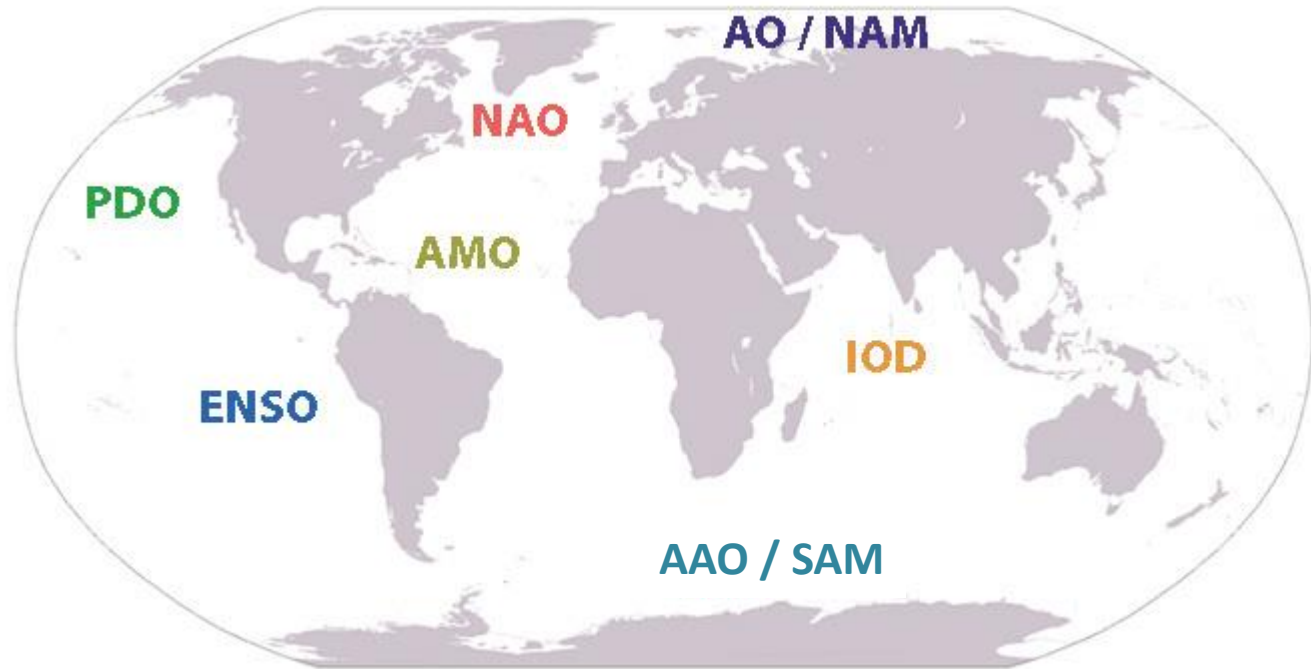


Représentativité physique

Variabilité de la couverture nuageuse

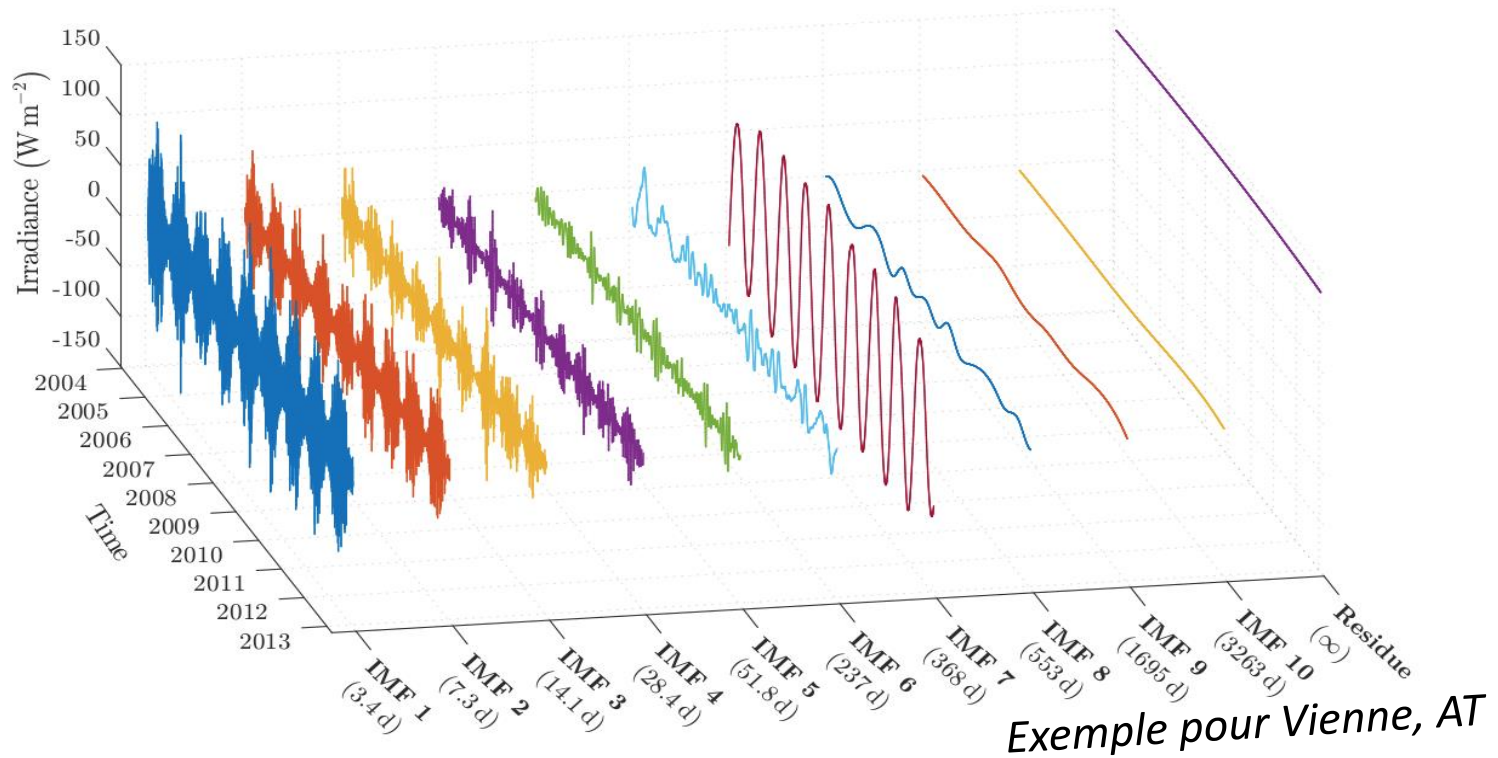
12

Principales oscillations climatiques



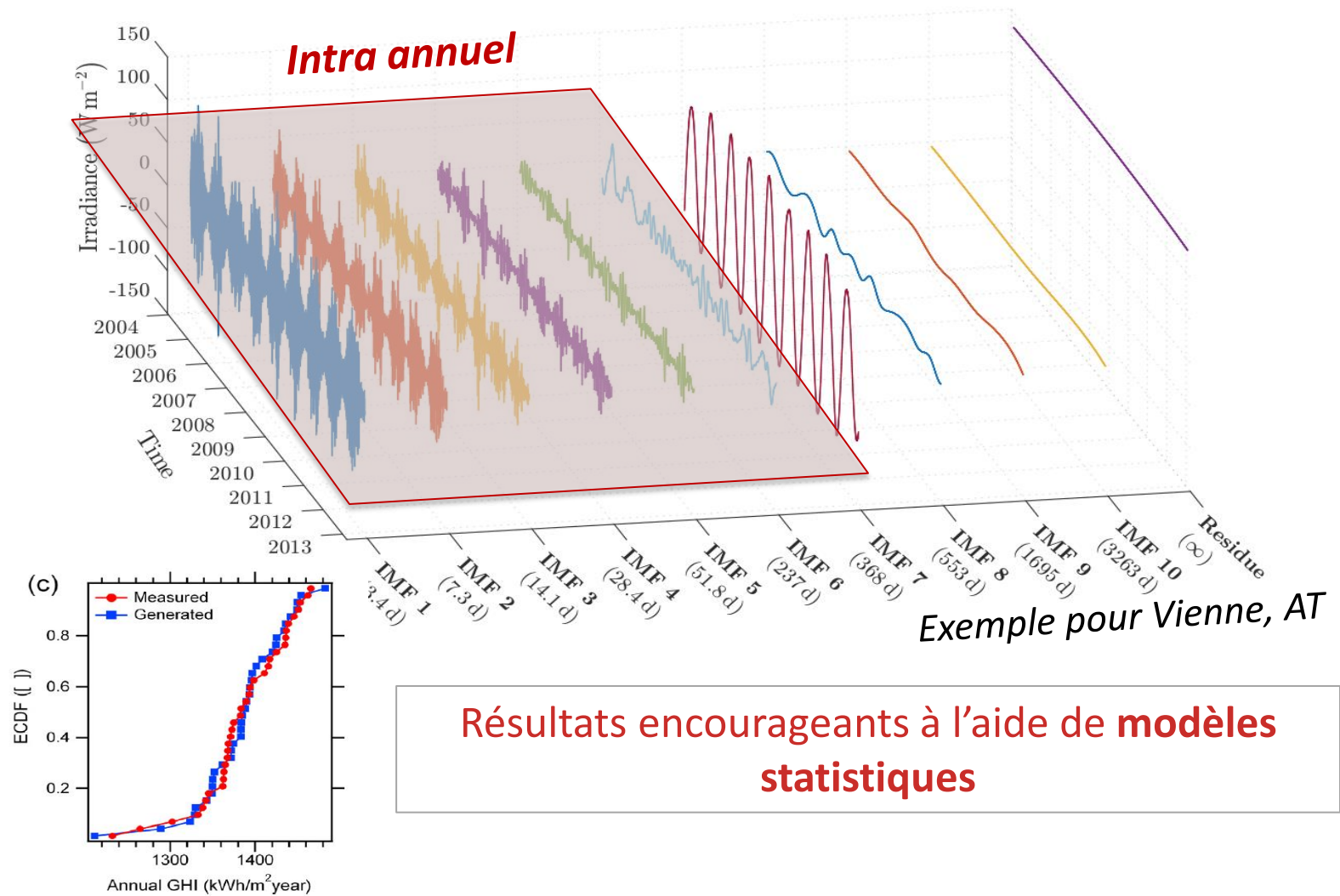
Génération de données

Méthodes couplées



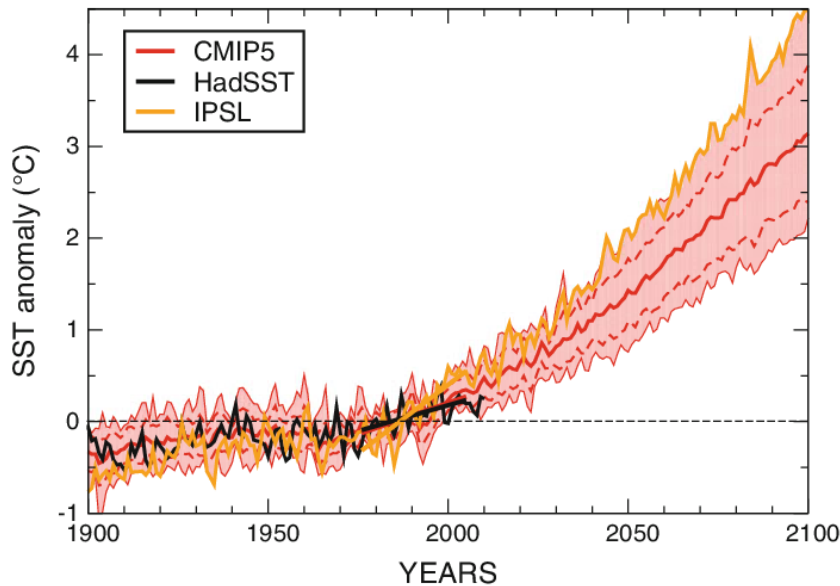
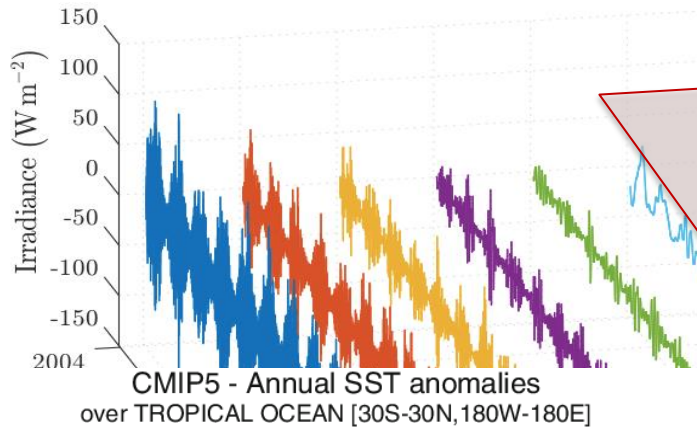
Génération de données

Méthodes couplées



Génération de données

Méthodes couplées



Interannuel

IME 5 (51.8d)
IME 6 (237d)
IME 7 (368d)
IME 8 (553d)
IME 9 (1695d)
IME 10 (3263d)
Residue (∞)

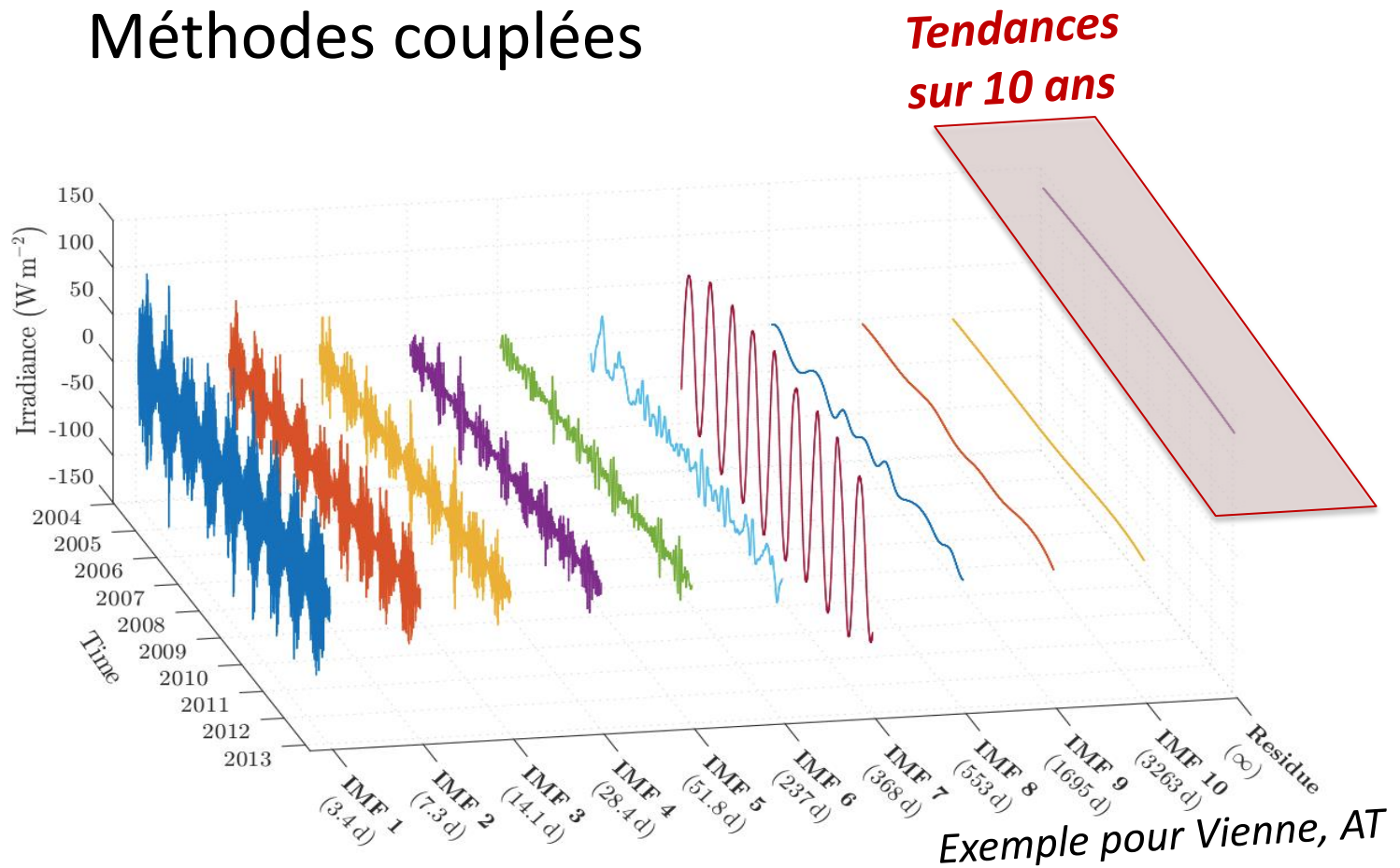
Exemple pour Vienne, AT

Résultats prometteurs à l'aide de **modèles climatiques**

Génération de données

Méthodes couplées

25



Modèles climatiques ?