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Temporal variability in global horizontal irradiance at differents time scales as affected by aerosols

Irene Fernández, Dr Marco Cony, Marta Jimenez, and Ralf Weisenberg
AF Aries Energía, Madrid, Spain (irene.fernandez@afconsult.com)

This study analyzes connection between atmospheric turbidity and solar energy production in some particular places over the planet, by analyzing solar components and temperature variations in function of Linke Turbidity (LT) increase during a year time period. For it, it has been considered aerosols measures from MODIS in three different places since 2010 to 2011. This data are used to estimate solar radiation components, which have hourly frequency.

The methodology is based on obtaining monthly mean irradiance data series, and to compare trends of each one with the rest, by difference calculating of monthly data series.

The results of this study conclude an inversely proportional connection between Linke Turbidity and solar irradiance components, which means less solar energy production while higher atmospheric aerosols quantity.