

2010 Meeting of the Americas
Search Results

Cite abstracts as **Author(s) (2010), Title, Eos Trans. AGU, 91(26), Meet. Am. Suppl., Abstract xxxxx-xx**

Your query was:

martins and au=costa

1400h

A13A-02 Poster

INFLUENCE OF HORIZONTAL VISIBILITY CHANGES ON THE ASSESSMENT OF SOLAR ENERGY RESOURCES

***Costa, R S**

rodrigo.costa@cptec.inpe.br

CCST, National Institute for Space Research, São José dos Campos,

Brazil

Martins, F R

fernando.martins@cptec.inpe.br

CCST, National Institute for Space Research, São José dos Campos,

Brazil

Pereira, E B

eniobp@cptec.inpe.br

CCST, National Institute for Space Research, São José dos Campos,

Brazil

The "Solar and Wind Energy Resource Assessment" (SWERA) project was an international project financed by GEF/UNEP which aimed at providing a consistent and accessible database to foster the insertion of renewable energies on the energy matrix of development countries. The resource assessment was generated by using the radiative transfer model BRASIL-SR fed with satellite and climate data. Maps on 10 by 10 km spatial resolution were generated for global, diffuse and direct normal solar irradiation. Studies show that the use of solar energy could bring long term benefits to Brazil by bringing development to remote areas; regulating the offer of energy during droughts; decreasing the dependency of the petroleum market and reducing the emissions of greenhouse gases to the atmosphere. Although the model had an adequate parameterization module for aerosol light scattering and attenuation, no real time information on the aerosol were available. Global climatological aerosol information was used as input during the mapping process, which lead to good results for many solar energy technology applications. Nevertheless, this simple approach produced a bias during the dry season that will hampers the use of the solar maps for development of some solar energy technologies such as concentrated solar power (CSP). An important atmospheric condition typical of Brazilian dry season is the emission of large amounts of aerosol particles during the process of burning of biomass for creation of new pastureland and new agricultural areas. The analyzes of meteorological data between 2006 and 2008 showed a decrease in horizontal visibility mainly at Brazilian Mid-West and Central regions during dry seasons. A simple but yet efficient methodology for the assimilation of aerosol information by the BRAZIL-SR model through the study of season changes of the readily available horizontal visibility data. All BRAZIL-SR model results shows an increase of difuse and decrease of direct normal radiation in south hemisphere spring, due aerosol parcitules. This results was verified in Brazilian Central regions and some Brazilian urban centers.

[0305] ATMOSPHERIC COMPOSITION AND STRUCTURE / Aerosols and particles

[0360] ATMOSPHERIC COMPOSITION AND STRUCTURE / Radiation: transmission and scattering

Atmospheric Sciences (A)

2010 Meeting of the Americas

[New Search](#)

[AGU Home](#)