

Evaluation of Terra/MODIS atmospheric profiles product (MOD07) over the Iberian Peninsula: a comparison with radiosonde stations

Por: [Sobrino, JA](#) (Sobrino, Jose A.)^[1]; [Jimenez-Munoz, JC](#) (Jimenez-Munoz, Juan C.)^[1]; [Mattar, C](#) (Mattar, Cristian)^[1,2]; [Soria, G](#) (Soria, Guillem)^[1]

[Ver ResearcherID y ORCID](#)

INTERNATIONAL JOURNAL OF DIGITAL EARTH

Volumen: 8

Número: 10

Páginas: 771-783

DOI: 10.1080/17538947.2014.936973

Fecha de publicación: 2015

[Ver información de revista](#)

Resumen

Remote sensing techniques are a useful tool for continuous observation of the Earth at global scale. However, products derived from remote sensing data require a rigorous validation using in situ data. Moderate Resolution Imaging Spectroradiometer (MODIS) is not really a sounding instrument, but it does have 16 infrared bands (bands 20-36 covering the spectral range from 3 μm to 14 μm) that allow the retrieval of temperature and moisture profiles as well as total column integrated magnitudes. In this paper we show the results obtained in the evaluation of MOD07 daytime and nighttime products over the Iberian Peninsula during the decade from 2000 to 2010 using nine radiosonde stations. Although MODIS limitations in comparison with other sounding instruments, the validation provided satisfactory results, with bias (MOD07 minus radiosonde) < 0.3 cm and a standard deviation of 0.5 cm for the total column water vapor, and bias around 1 K on average with standard deviations between 2 K and 3 K for air temperature at different pressure levels. On average, bias was positive and below 2 K with standard deviations around 5 K for the dew point temperature case. Large errors were found in this case for pressure levels higher than 50 hPa.

Palabras clave

Palabras clave de autor: [MODIS](#); [MOD07](#); [atmospheric profiles](#); [water vapor](#); [air temperature](#); [dew point temperature](#)

KeyWords Plus: [TEMPERATURE](#); [MODIS](#)

Información del autor

Dirección para petición de copias: [Sobrino, JA](#) (autor para petición de copias)

[+](#) [Univ Valencia, Global Change Unit, Image Proc Lab, Valencia, Spain.](#)

Direcciones:

[+](#) [\[1 \] Univ Valencia, Global Change Unit, Image Proc Lab, Valencia, Spain](#)

+ [2] Univ Chile, Lab Anal Biosphere, Santiago, Chile

Direcciones de correo electrónico:sobrino@uv.es

Financiación

Entidad financiadora	Número de concesión
European Union [CEOP-AEGIS]	FP7-ENV-2007-1 212921
Ministerio de Economía y Competitividad [EODIX]	AYA2008-0595-C04-01
CEOS-Spain	AYA2011-29334-C02-01
Universitat de Valencia	PRECOM13-115366

[Ver texto de financiación](#)

Editorial

TAYLOR & FRANCIS LTD, 4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Categorías / Clasificación

Áreas de investigación:Physical Geography; Remote Sensing

Categorías de Web of Science:Geography, Physical; Remote Sensing

Información del documento

Tipo de documento:Article

Idioma:English

Número de acceso: **WOS:000370795000001**

ISSN: 1753-8947

eISSN: 1753-8955

Información de la revista

- Impact Factor: [Journal Citation Reports®](#)

Otra información

Número IDS: DE7DO

Referencias citadas en la Colección principal de Web of Science: **9**

Veces citado en la Colección principal de Web of Science: **0**