TABLE 2

SAN PEDRO MÁRTIR AEROSOL OPTICAL THICKNESS (AOT) DATA

Source of solar radiation data:	MODIS Aerosol, NASA
Satellites:	*Aqua* and *Terra*
Instrument:	Moderate Resolution Imaging Spectroradiometer
Site:	San Pedro Mártir, Baja California, Mexico
Location:	
Latitude	31°02′40″ North
Longitude	115°28′00″ West
Elevation:	2830 m
Aerosol optical depth observations (2000–2008):	1078
Data Files:	4008
Format:	HDF
Product Files:	MOD04_ L2
Collection:	5
Parameter:	Corrected_ Optical_ Depth_ Land
Wavelengths, λ (nm):	470, 550, 660
Bandwidth $\Delta\lambda$ (nm):	20, 20, 50
Parameter:	Corrected_ Optical_ Depth_ Land_ wav2p1
Wavelength:	2130 nm
Bandwidth $\Delta\lambda$ (nm):	50
Re projection:	Geographic
Re-projected Files:	8016
Extraction Data Files:	8016

to obtain the ambient land aerosol optical thickness (AOT). Data were obtained for the period from January 2000 to December 2008 at the four spectrometer wavelengths: 470, 550, 660 and 2130 Å, since we are also interested in the wavelength dependence τ_λ. The data characteristics are presented in Table 2. The MODIS photometers channels are presented in Table 1 of Remer et al. (2006), we note that the central wavelength and bandwidth (in parenthesis) presented in their table are 466 (20), 553 (20), 646 (50) and 2119 (50) nm, which are slightly different from the ones in the MODIS Web site.

5. METHODOLOGY

In order to obtain the atmospheric optical thickness (AOT) data of the SPM site at the selected wavelengths (4700, 5500, 6600 y 21300 Å) a set of necessary data processing steps were required. The data were processed as follows.

5.1. *Data files acquisition MOD04*

The data files for the 2000–2008 period were obtained from the LAADS (Level 1 and Atmosphere Archive and Distribution System) Web site, where the location of the site and the required period is provided as input. The daily AOT data are available for retrieval but the supplied images are given in geodetic coordinates.

5.2. *Geographic re-projection*

The necessary transformation from geodetic to geographic coordinates was done using a re-projection script and was applied to each image file using the program HDFLook. The re-projected images were constructed with a resolution of 10 km × 10 km per pixel, which is the maximum possible resolution of the system. In this way, the site location can be obtained at the pixel position of the selected site.

5.3. *Data extraction of AOT (470, 550, 660 y 2130 nm)*

Using the re-projected images the final data extraction of the aerosol optical thickness, AOT, was done with another script, using the HDFLook program.

5.4. *Temporal AOT for SPM*

The data were extracted year by year to avoid errors. For the period 2000–2008 the total number