

Table 1: Major Global Data Sets Used by NREL for Wind Resource Assessment

Data Set	Type of Information	Source	Period of Record
Surface station data	Surface observations from more than 20,000 stations worldwide	NOAA/NCDC	Variable up to 2006
Upper air station data	Rawinsonde and pibal observations at 1,800 stations	NCAR	1973–2005
Satellite-derived ocean wind data	Wind speeds at 10 m above the ocean surface gridded to 0.25°	NASA/JPL	1988–2006
Marine climatic atlas of the world	Gridded (1.0°) statistics of historical ship wind observations	NOAA/NCDC	1854–1969
Reanalysis upper air data	Model-derived gridded (~200-km) upper air data	NCAR-NCEP	1958–2005
Global upper air climatic atlas	Model-derived gridded (2.5°) upper air statistics	NOAA/NCDC	1980–1991
Digital geographic data	Political, hydrograph, etc.	ESRI	N/A
Digital terrain data	Elevation at 1-km spatial resolution	USGS/EROS	N/A
Digital land cover data	Land use/cover and tree cover density at 0.5-km resolution	NASA/USGS	N/A

Table 2: Major global data sets used for solar resource assessments

Data Set	Type of Information	Source	Period of Record
Surface station data	Surface cloud observations from more than 20,000 stations worldwide	NOAA/NCDC	Variable up to 2006
World Radiation Data Center	Surface radiation observations from over 1,000 stations worldwide	WRDC, St. Petersburg	1964–1993
Satellite imagers	Imagery from the visible channel of geostationary weather satellites, 1-km resolution	NASA/NOAA	1997– present
International Satellite Cloud Climatology Project	Used in the 1 ⁰ global surface solar energy meteorological data set	NASA/SSE	1983–2003
AERONET	Observations of aerosol optical depth from around the world	NASA/Goddard	Variable depending on station
GACP	Aerosol optical depths (generally over oceans) at 1 ⁰ x 1 ⁰ from AVHRR data	NASA	1981–2005
MODIS, MISR, TOMS	Aerosol optical depth	NASA	Variable since

			1980s
GOCART	Aerosol optical depth for turbid areas	NASA	March 30- May 3, 2001
GADS	Aerosol optical depth derived from theoretical calculations and proxies		Compilation of Measurements and Models
Digital geographic data	Political, hydrography, etc.	ESRI	N/A
Digital terrain data	Elevation at 1-km spatial resolution	USGS/EROS	N/A
Digital land cover data	Land use/cover and tree cover density at 0.5-km resolution	NASA/USGS	N/A