

Long Term Average

Description

Long term data record (LTDR) is necessary for estimate gaps in the time vegetation index series. The aim of the LTDR is to create a seamless long term data from AVHRR to MODIS [Pedelty et al]. The long term average can be used for either constrain the data for the year of interest and/or fill the gap for a particular day using the average for that day. It has been calculated for different periods and situations. In order to determine the long term average, the AVHRR data were divided in:

- 5-year (1980-1985, 1985-1990, 1990-1995, 1995-2000, 1983-1988, 1988-1993, and 1993-1998)
- 10-years (1980-1990, and 1990-2000) and 20-years (1980-2000).

The MODIS data were divided in

- 5-years (2000-2005 and 2005-2010) and
- 10-year (2000-2010).

By combining both AVHRR and MODIS, the overall long term average was calculated (from 1980 through 2010).

	AVHRR																			MODIS										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
5-year averages																														
10-year averages																														
20-year average																														
30-year average																														

Process

The simple statistical procedures such as mean and standard deviation were performed to the data of each day of year for the different long term periods.

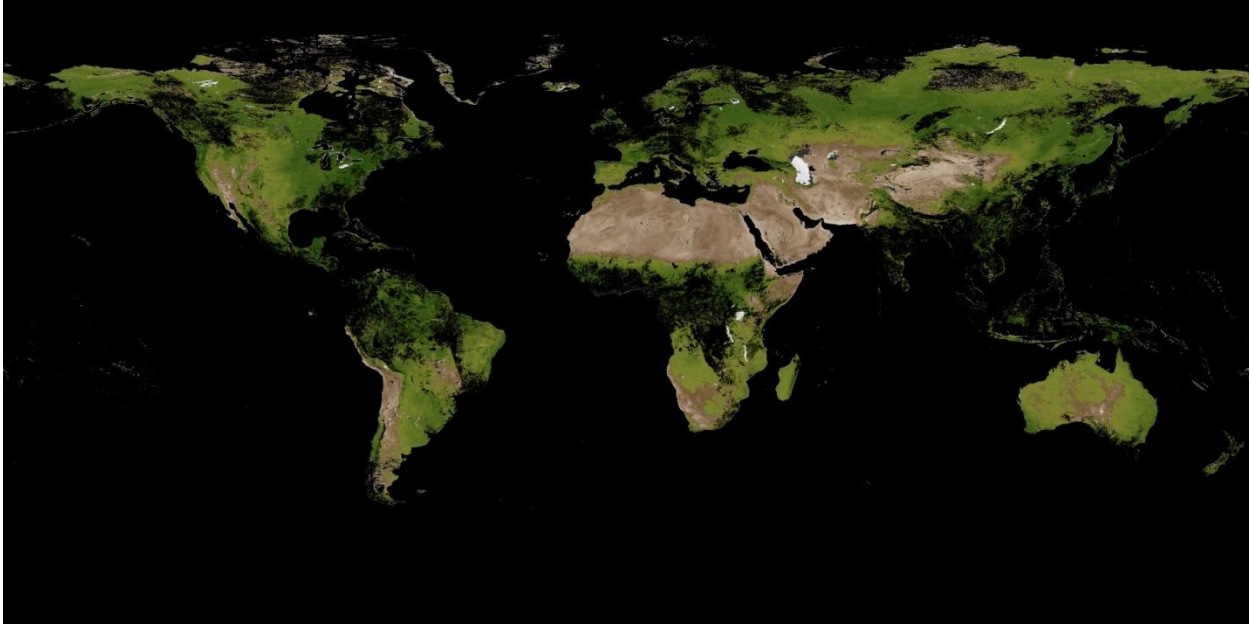


Figure 1: Long Term Average from 1980 to 1985 (DOY244, AVHRR)

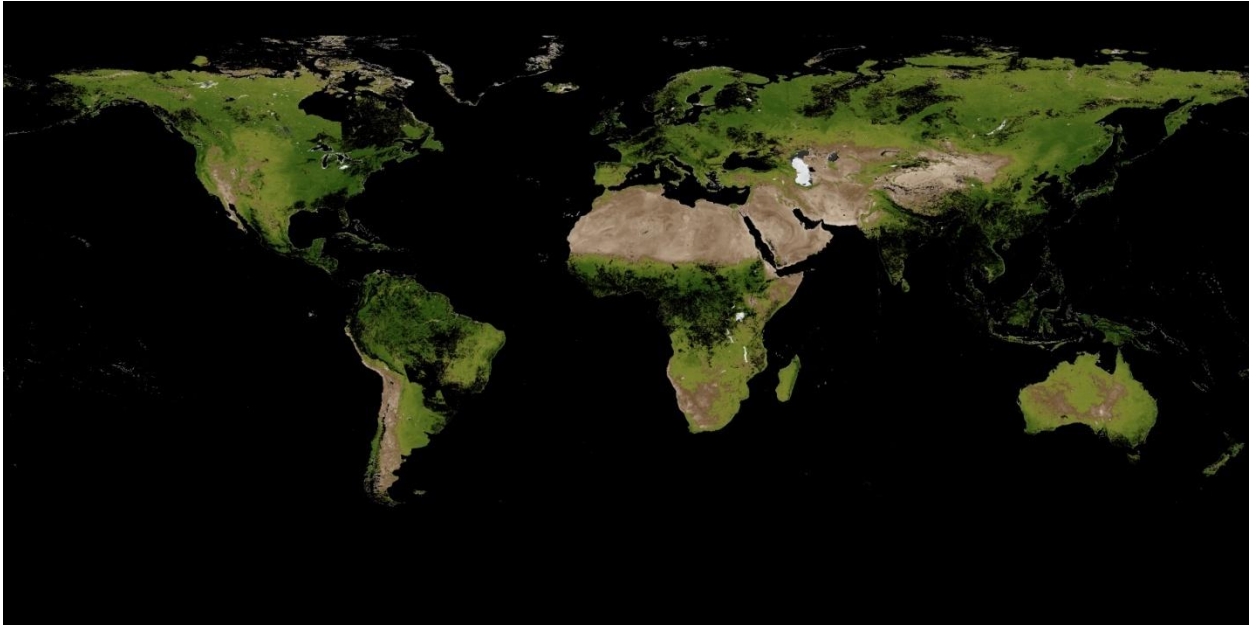


Figure 2: Long Term Average from 1985 to 1990 (DOY244, AVHRR)

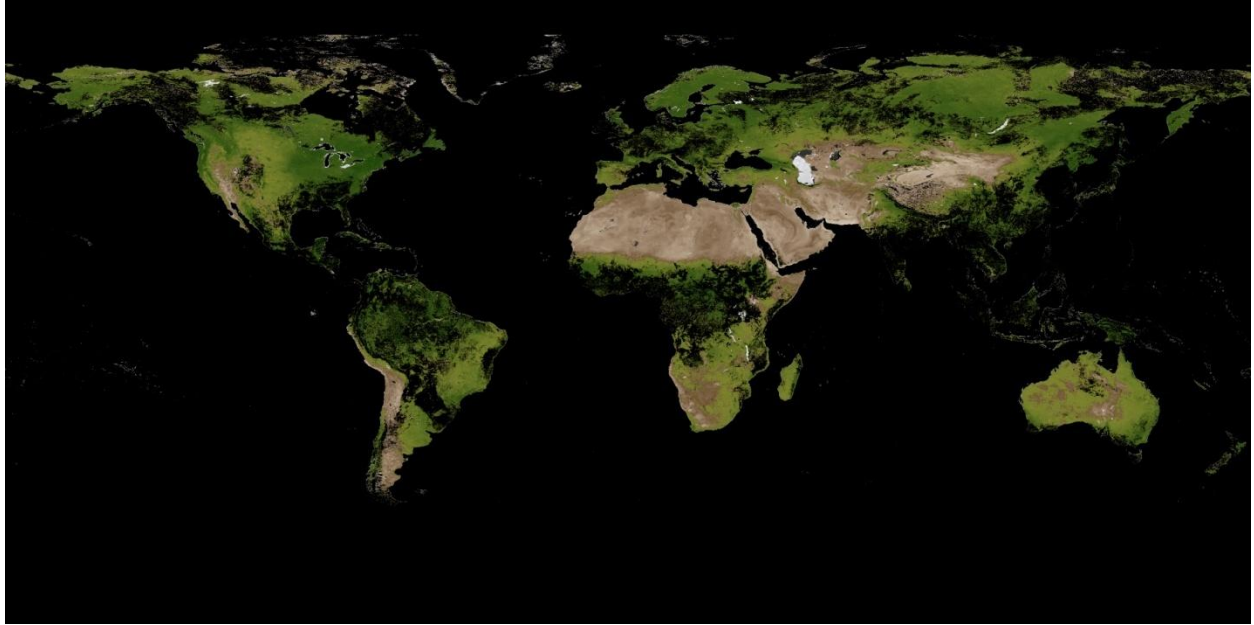


Figure 3: Long Term Average from 1990 to 1995 (DOY244, AVHRR)

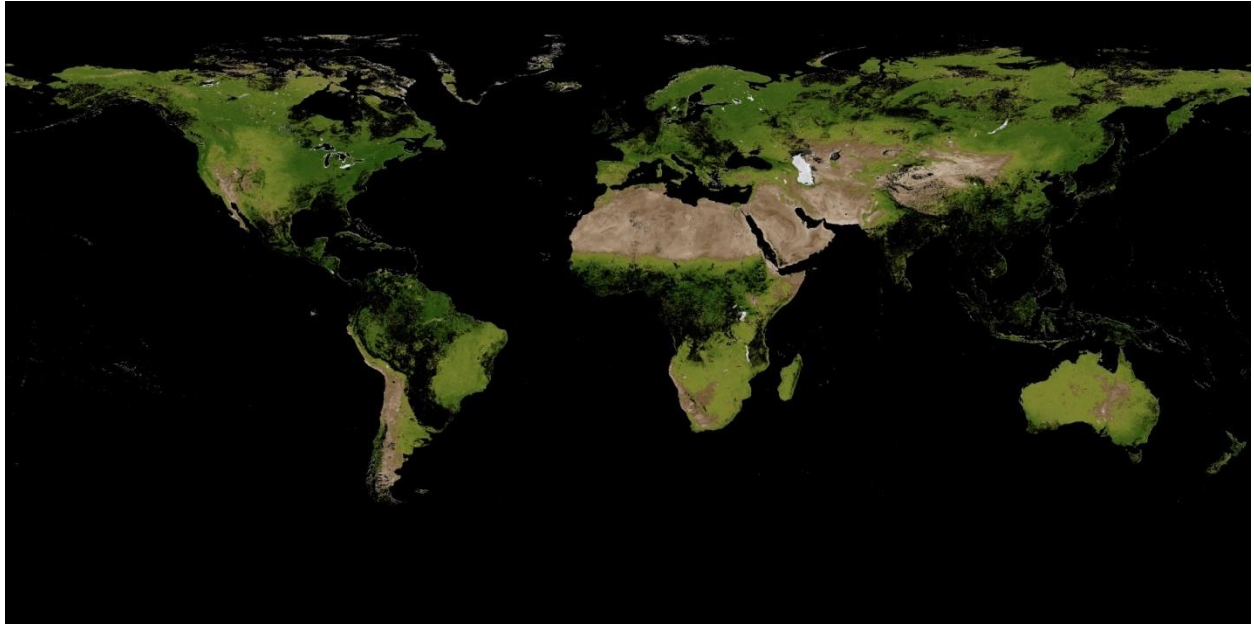


Figure 4: Long Term Average from 1995 to 2000 (DOY244, AVHRR)

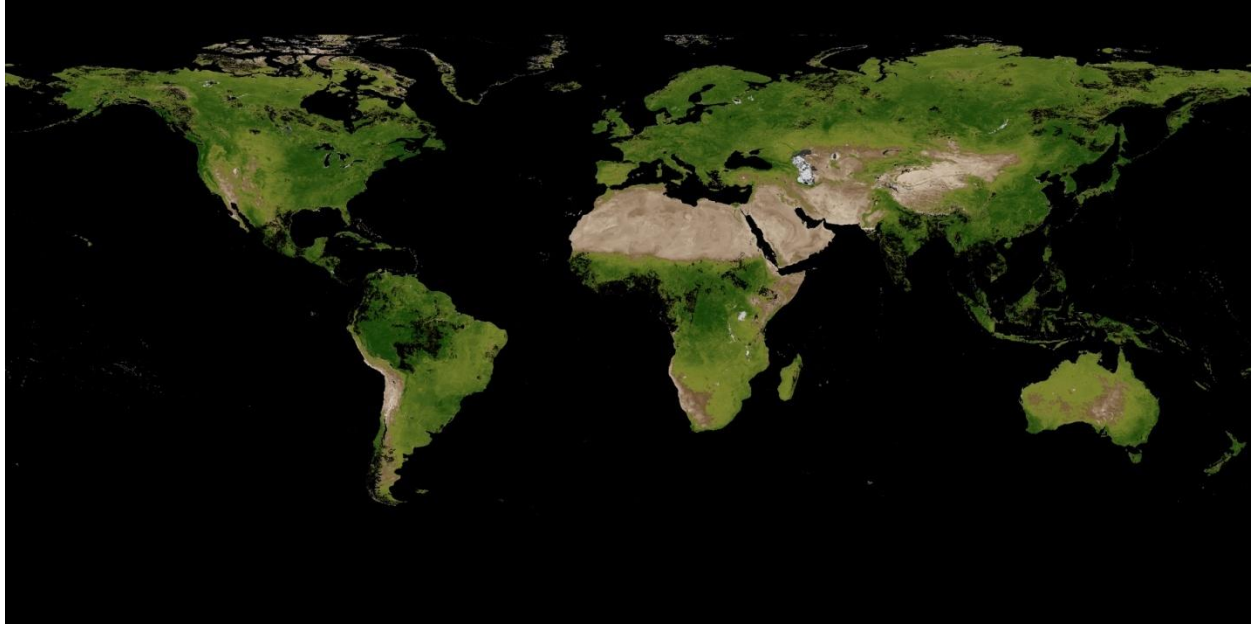


Figure 5: Long Term Average from 2000 to 2005 (DOY244, MODIS)

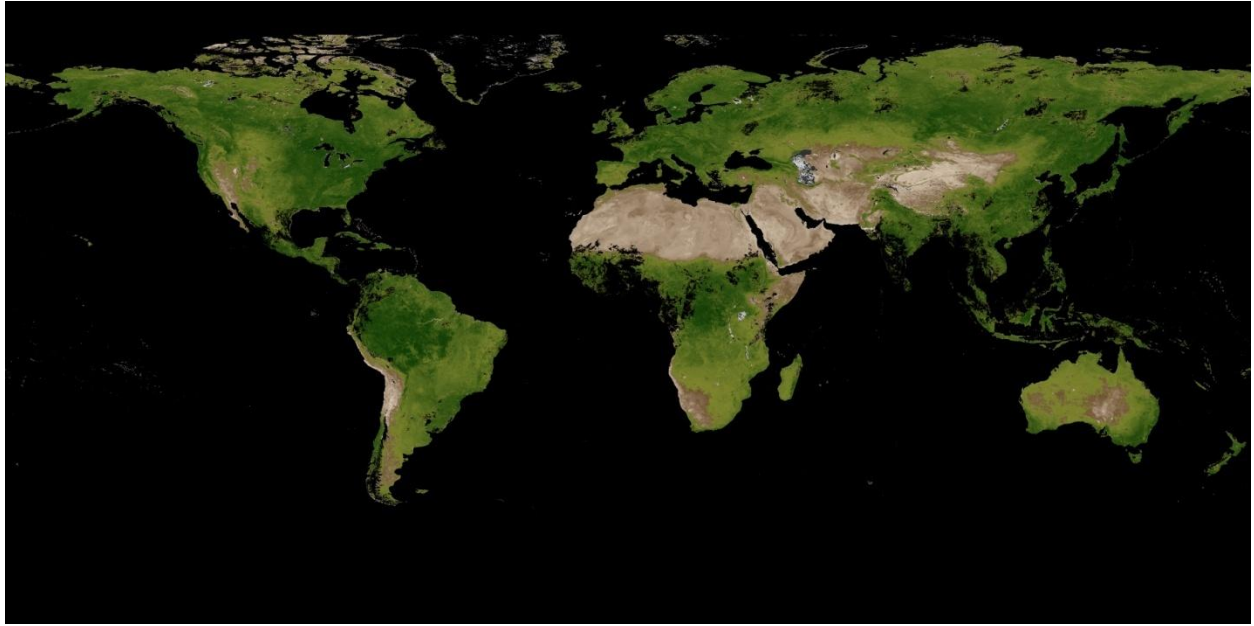


Figure 6: Long Term Average from 2005 to 2010 (DOY244, MODIS)

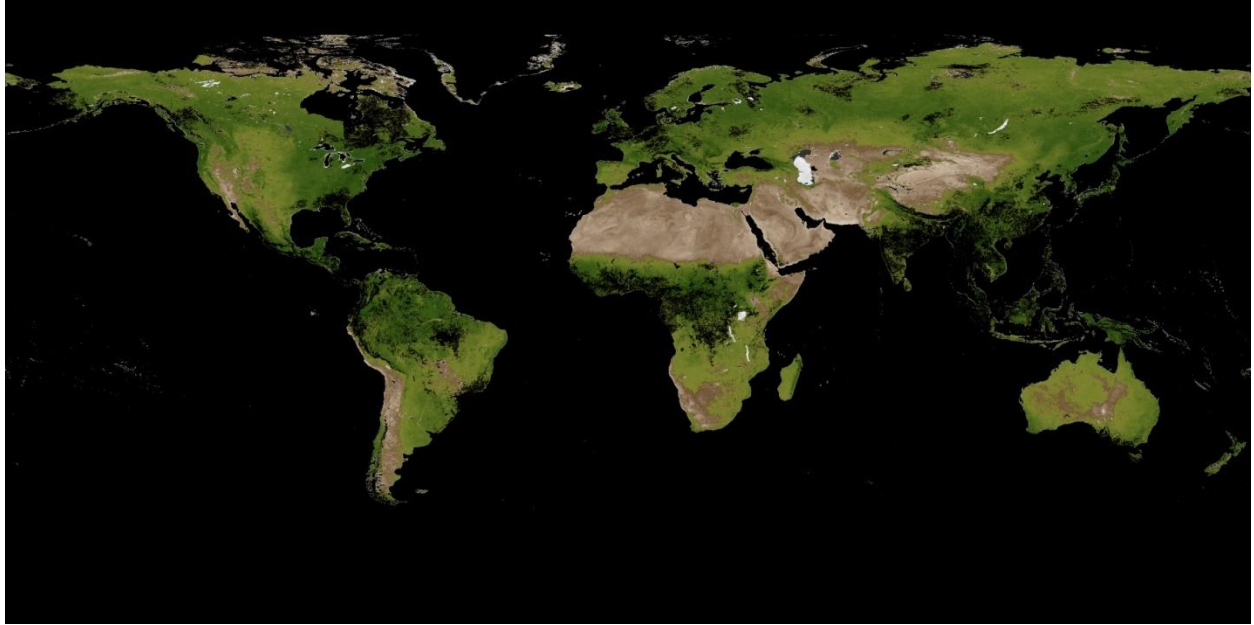


Figure 7: Long Term Average from 1900 to 1990 (DOY244, AVHRR)

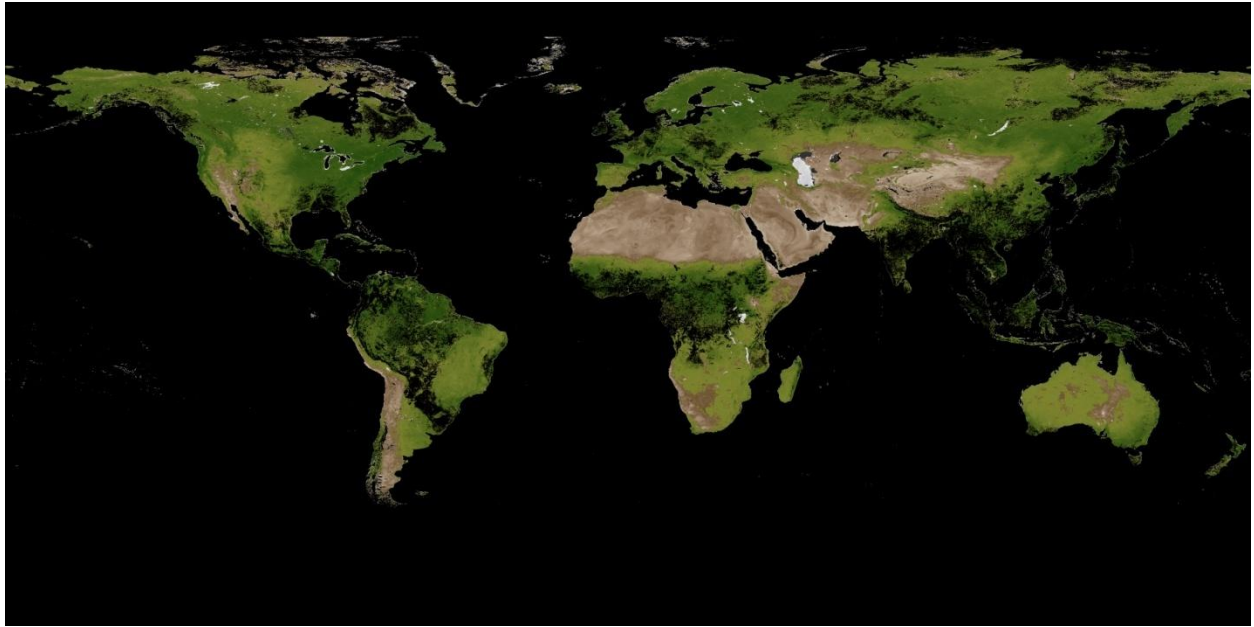


Figure 8: Long Term Average from 1990 to 2000 (DOY244, AVHRR)

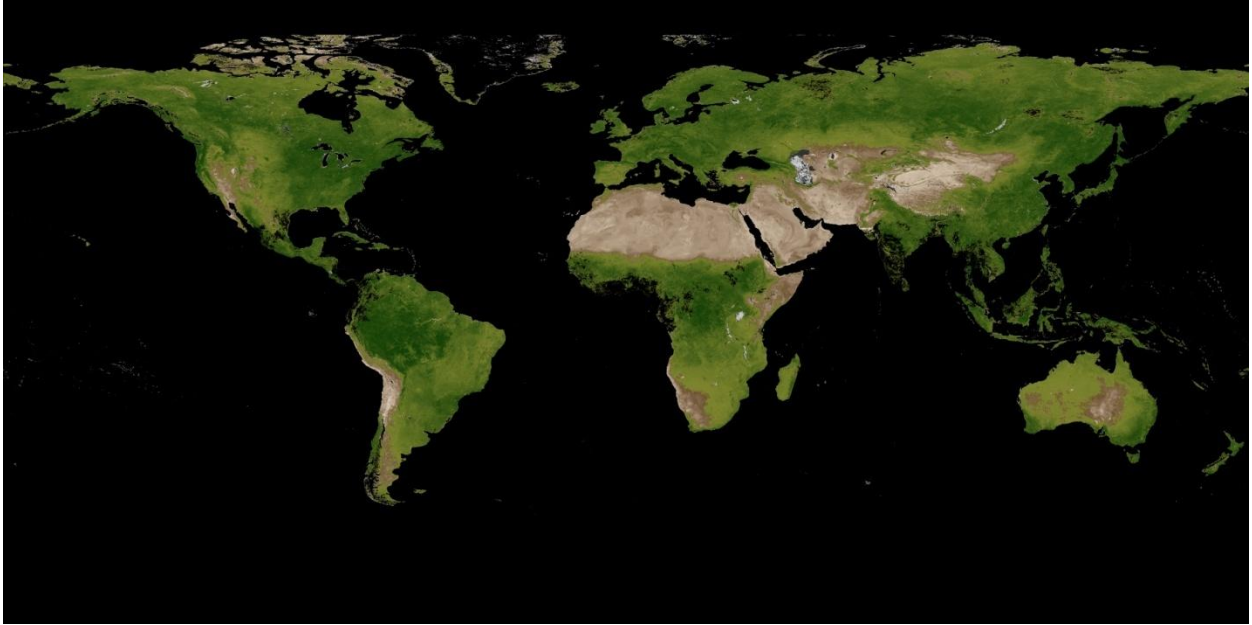


Figure 9: Long Term Average from 2000 to 2010 (DOY244, MODIS)

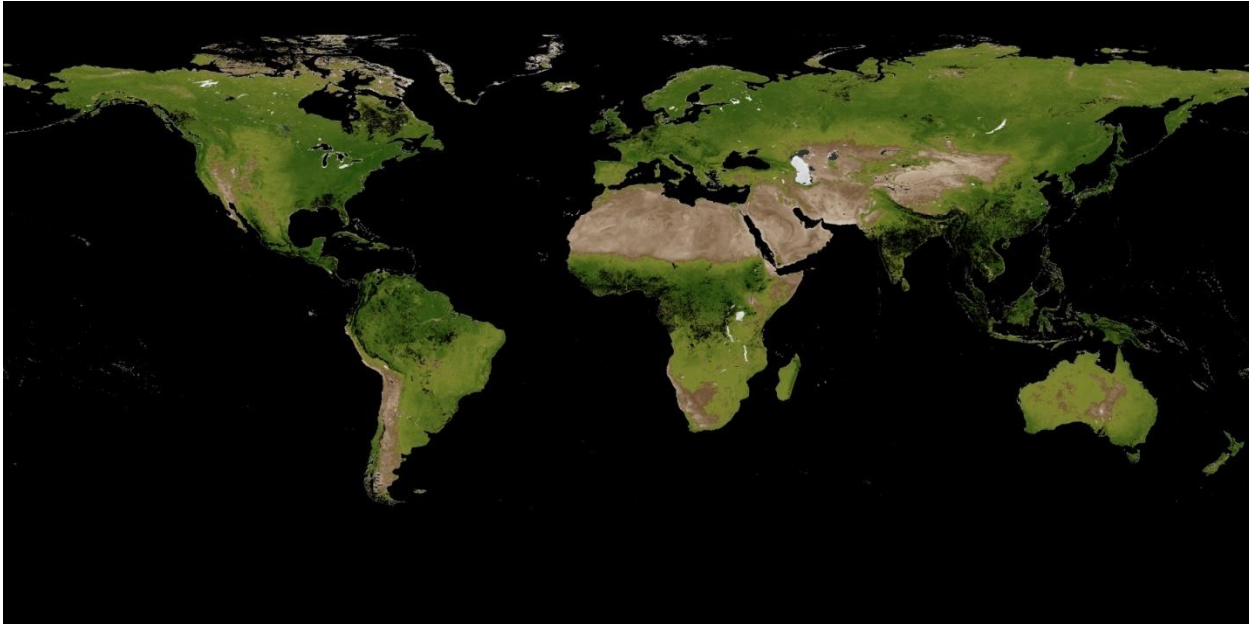


Figure 10: Long Term Average from 1980 to 2000 (DOY244, AVHRR)

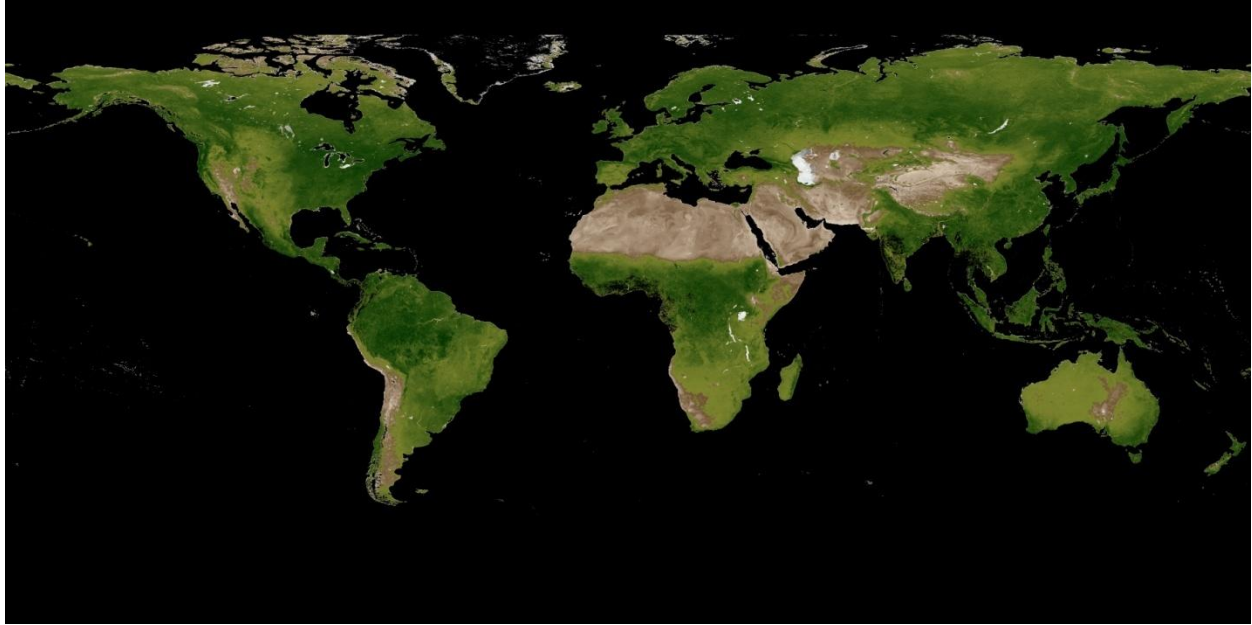


Figure 11: Long Term Average from 1980 to 2010 (DOY244, AVHRR/MODIS)

Data Set Characteristics

Temporal Coverage	1980-2010
Area	Global
File Size	~674 MB
Projection	Latitude/Longitude
Data Format	HDF-EOS
Dimensions	3600 x 7200 rows/columns
Resolution	0.05 degrees (5600 meters)
Location	/VIP/DATA/MEASURES/OUTPUT/LongTermAVG

Limitations

These data show gaps because they were filtered. The user can use the non-filtered data.

References:

J. Pedelty, D. Roy, E. Vermonte, Crystal Schaaf, J. Privette. “Generating a Long-Term Land Data Record from AVHRR and MODIS Instruments”. IEEE, 2007 pp 1021-1025.