



国家卫星气象中心
国家空间天气监测预警中心

AVHRR LAC in CMA

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Overview of AVHRR Data in CMA



- CMA began to receive the data of NOAA serial satellite AVHRR since 1988 and keep doing this beyond 2010s.
- These data were very useful for CMA remote sensing application and weather/disaster monitoring such as fire monitoring and disaster control decision at Daxinanling in 1988.
- These climate dataset such as NDVI, SST/LST, OLR, Snow coverage, Cloud parameters were generated for the reanalysis and climate research.





Data List of AVHRR/HRPT Archived



Data List of AVHRR/HRPT Orbital Files Received and Processed by NSMC in China and Surrounding Areas

Serial	Satellite	Sensor	Format	Year	Start date	End date	Number of orbits	Data volume (GB)
1	NOAA-9	AVHRR/2	1b	1988	06.15	11.14	265	18.6
2	NOAA-10	AVHRR/2	1b	1988	06.15	12.31	608	41.9
3	NOAA-11	AVHRR/2	1b	1988	11.15	12.31	154	11.5
4				1989	01.01	12.31	908	61.1
5				1990	01.01	12.31	982	68.0
6				1991	01.01	12.31	1054	78.2
7				1992	01.01	12.31	1213	91.3
8				1993	01.01	12.31	1207	91.1
9				1994	01.01	9.13	844	64.7
10	NOAA-12	AVHRR/2	1b	1994	06.03	12.31	627	45.1
11				1995	01.01	02.28	206	15.1
12	NOAA-14	AVHRR/2	1b	1995	02.11	12.31	1117	85.7
13				1996	01.01	12.31	1265	98.4
14				1997	01.01	12.31	1260	98.8
15				1998	01.01	12.31	1254	98.4
16				1999	01.01	12.31	1245	89.1
17				2000	01.01	12.31	1117	81.9
18				2001	01.01	12.31	942	69.0
19				2002	01.01	05.03	291	20.1
20	NOAA-16	AVHRR/3	1A5(rar)	2001	10.21	12.31	680	82.8
21				2002	01.01	04.30	581	26.2



Usage and Application in CMA

- These long term achived AVHRR historical dataset are invaluble for CMA Climate research and disaster Thematic dataset
- They were reprocessed several times in the passed decades, especially regeolocation processing and HDF L1b format generation.
- These climate dataset such as NDVI, SST/LST, OLR, Snow coverage, Cloud parameters were generated for the reanalysis and climate research.

File name	File Numbers	Data Column (GB)	Beginning Date	Ending Date
NA10_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	1129	158.08	1988/1/21	1991/12/24
NA11_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	1959	293.50	1989/1/1	1994/9/13
NA12_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	2649	473.14	1991/12/25	1999/3/31
NA14_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	2623	458.57	1995/2/11	2002/5/3
NA16_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	1166	283.13	2002/10/15	2005/12/31
NA17_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	2098	475.22	2003/3/14	2008/12/31
NA18_AVHRR_HRPT_L1_MOS_MLT_GLL_YYYYMMDD_hhmm_1100M_V2.ZIP	1092	259.34	2006/1/1	2008/12/31

NOAA16	NA16_AVHRR_HRPT_L1_ORB_MLT_NUL_YYYYMMDD_HHmm_1100M_PJL1B	NOAA-16 AVHRR HRPT 1B	20441	2084.02	20050616	20140606
NOAA17	NA17_AVHRR_HRPT_L1_ORB_MLT_NUL_YYYYMMDD_HHmm_1100M_PJL1B	NOAA-17 AVHRR HRPT 1B	23058	2350.89	20000101	20120517
NOAA18	NA18_AVHRR_HRPT_L1_ORB_MLT_NUL_YYYYMMDD_HHmm_1100M_PJL1B	NOAA-18 AVHRR HRPT 1B	31926	3361.84	20050824	20180324

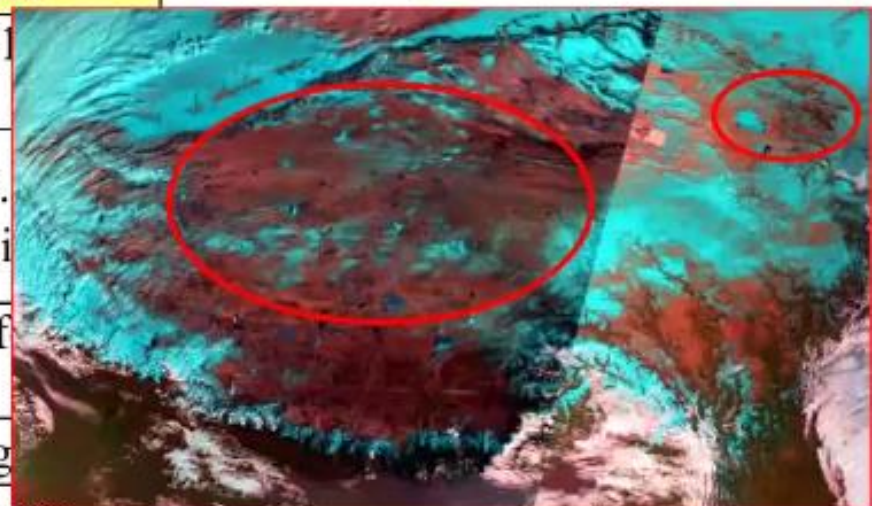


Daily Snow coverage using AVHRR 0.01×0.01 in China

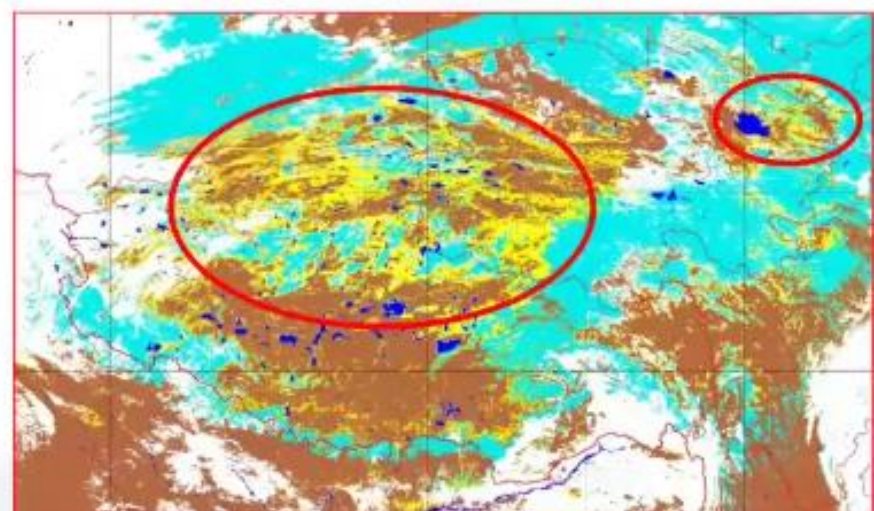
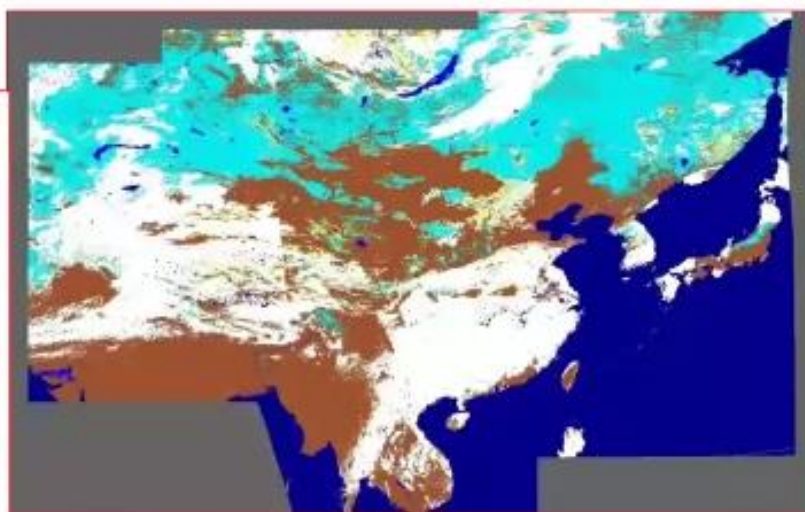
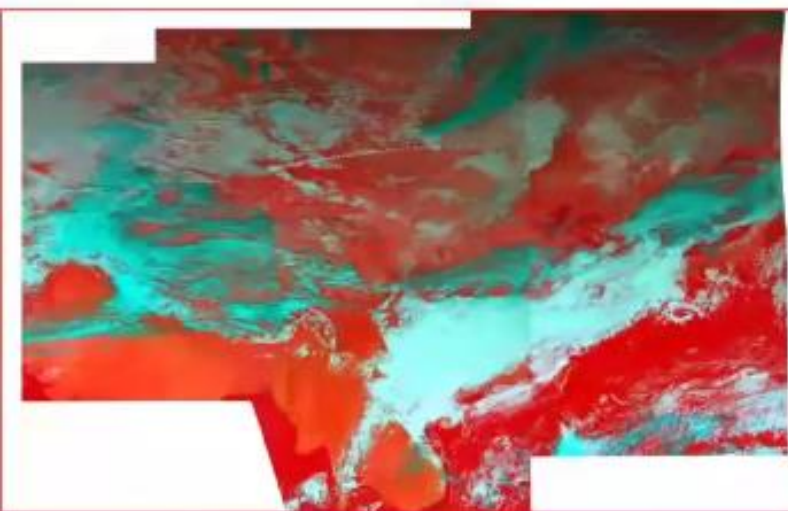


AVHRR/3, with 1.6um

Satellite	Beginning	Ending	Snow Products	Missing Data
NOAA-11	1989. 01. 01	1994. 09. 13	All finished	1990.11、1991 missing
NOAA-14	1995. 02. 11	2002. 05. 03	All finished, can not generated snow coverage after 2000	1995.04、1999. 2000.12 missi
NOAA-16	2002. 10. 15	2005. 12. 31	finished after 2003.05	data issue bef 2003.05
NOAA-18	2006. 01. 01	2008. 12. 31	All finished	No missing
MetOp-A	2009. 01. 01	2015. 12. 31	All finished	five days missing



AVHRR/2, no 1.6um



No Data Undetermined Night Clear Land Inland Water Sea Water Cloud Cover Ice Cover Snow Cover Saturated



Issues Remainning



- it is empty of the first 103 bytes with no synchronized words in NOAA-AVHRR-1B or 1A5 format.
- High accuracy geolocation processing algorithm can be shared from ESA recovery project?
- High accuracy radiometric coefficients should be consistent with ESA recovery project?
- CMA is happy to join the AVHRR recovery project to share the experience from this community





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Thanks!

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