

宇宙天気ユーザーズフォーラム
(2011.06.27@国際会議室)

最近の宇宙天気の状況について

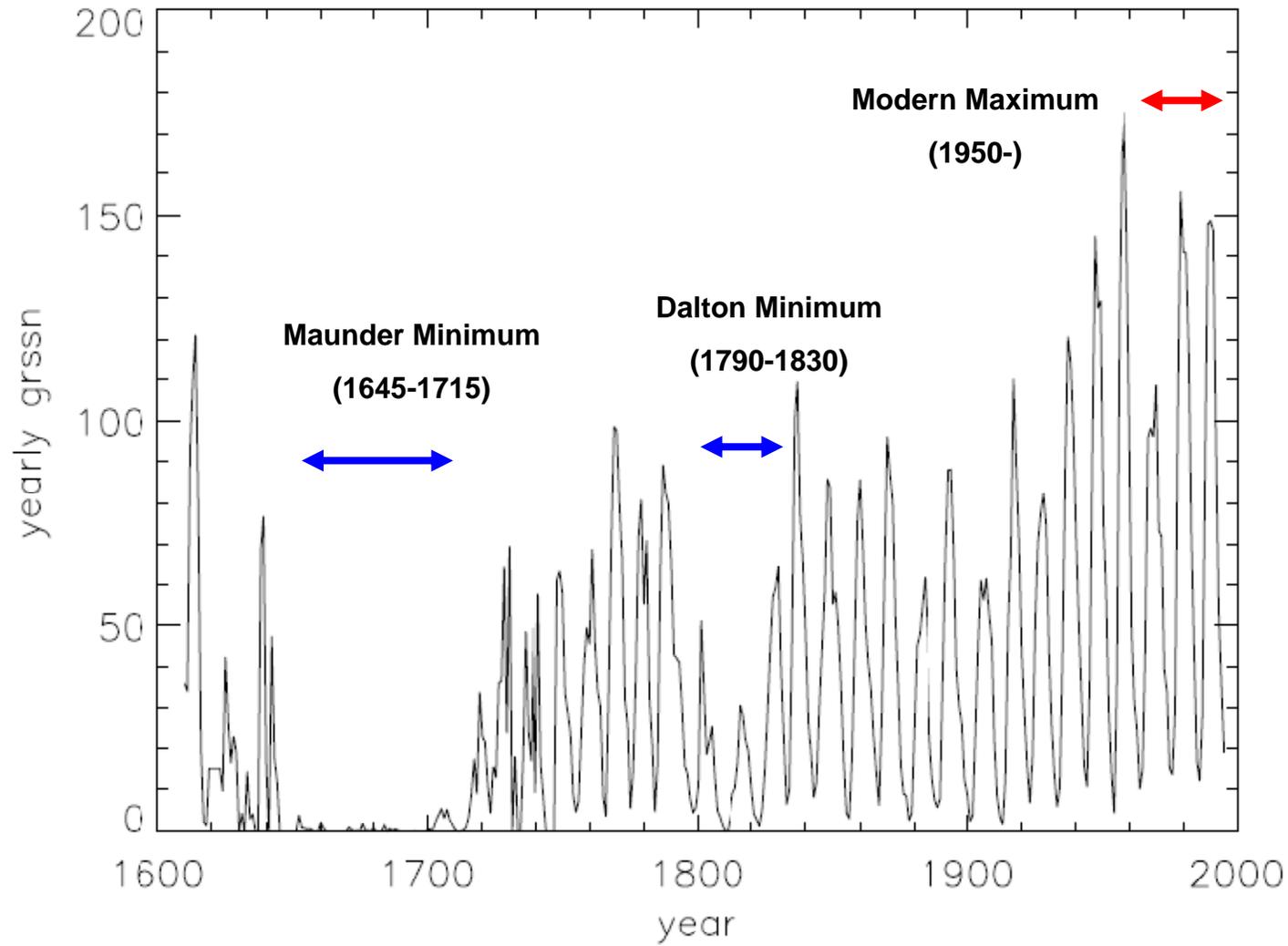
情報通信研究機構

亘 慎一

概要

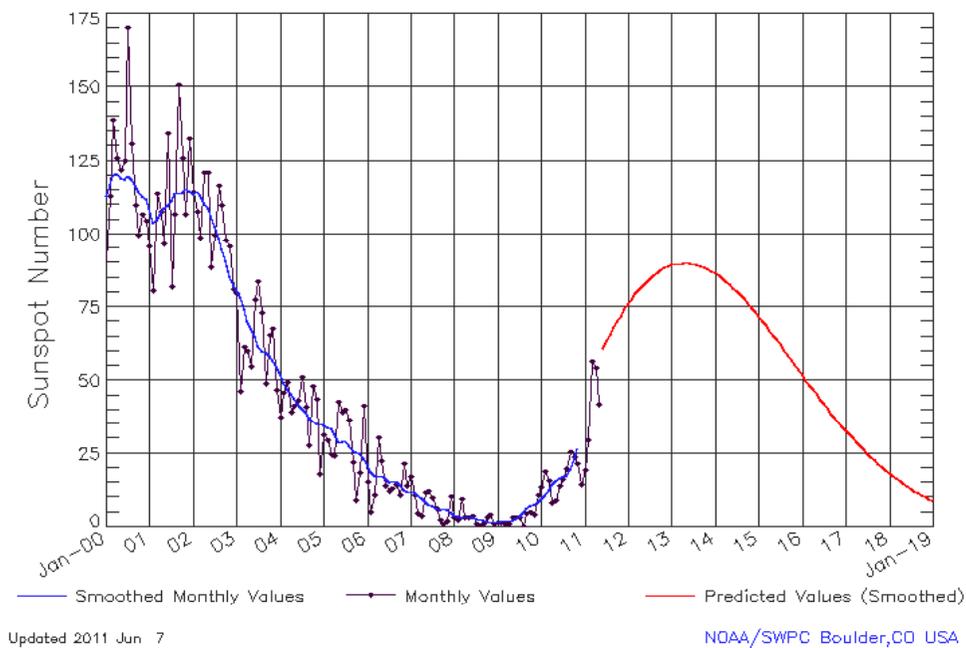
- サイクル23の極小：2008年の12月
- 太陽活動は徐々に上昇中
- NOAA/SWPCの予測によれば、サイクル24の極大は、2013年の半ば頃で極大の黒点数は90
- 最近の目立った現象の紹介
(2011年2月15日、2011年6月7日)

太陽黒点数



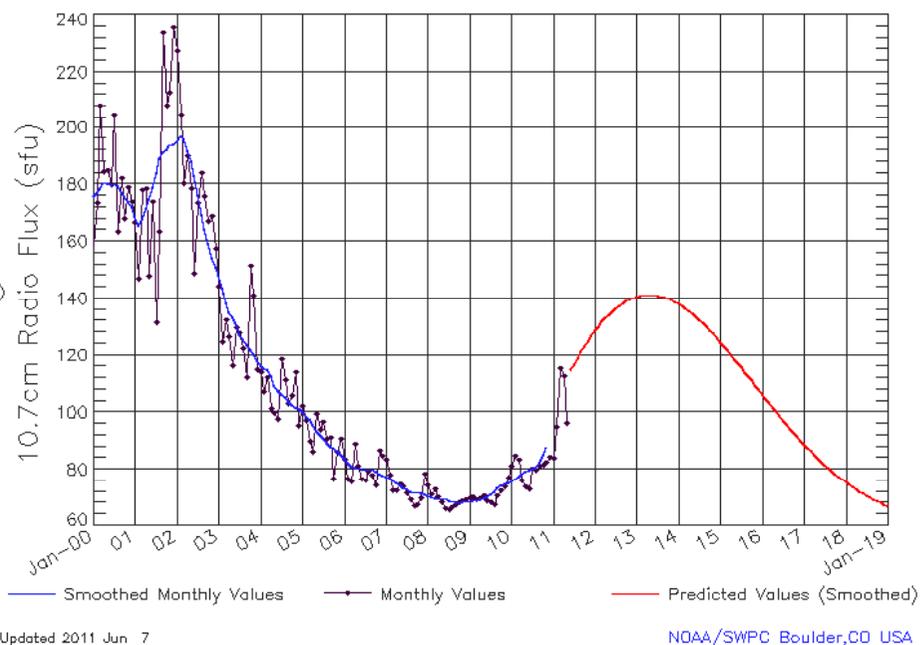
NOAA/SWPCによるサイクル24の予測値

ISES Solar Cycle Sunspot Number Progression
Observed data through May 2011



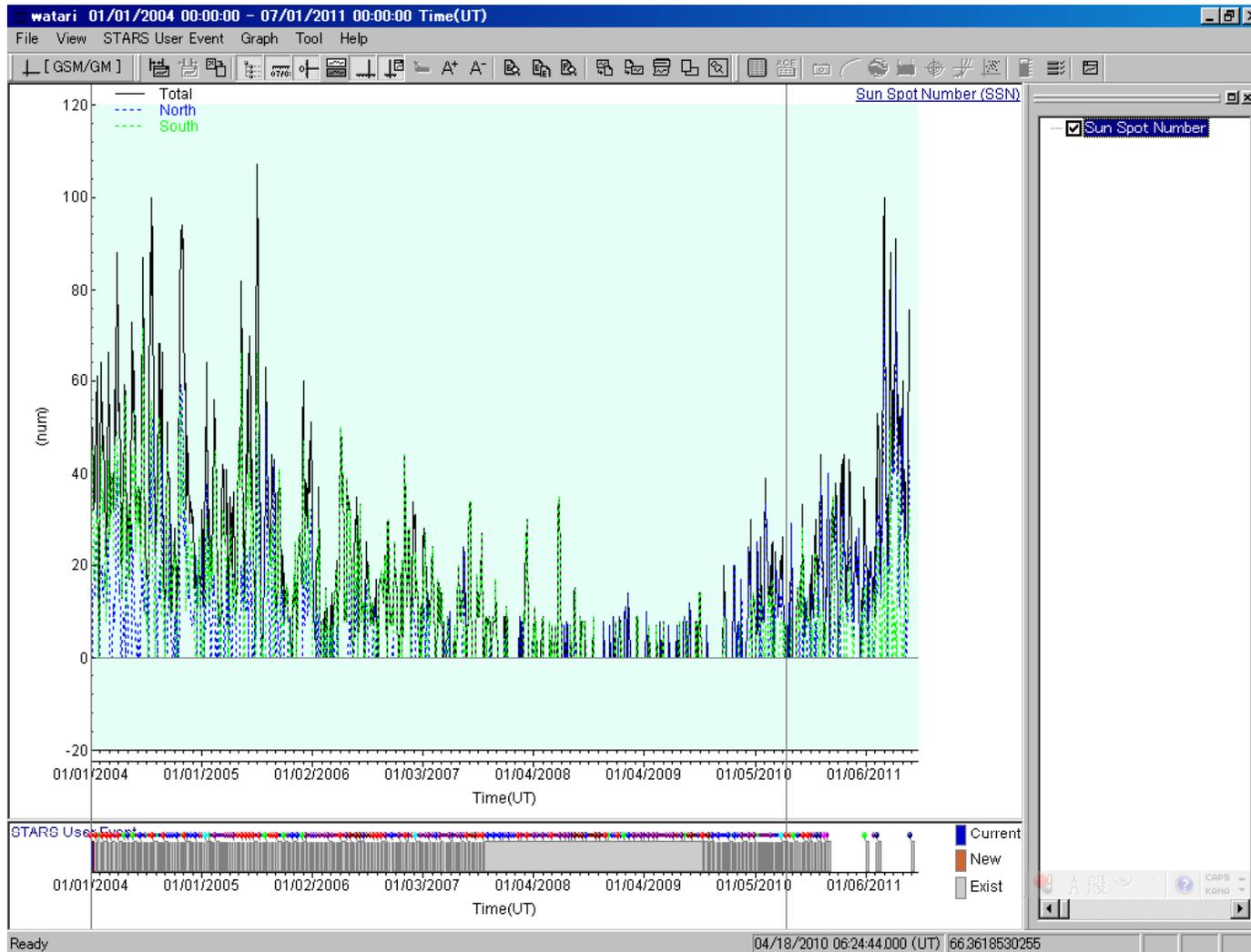
極大:2013年5月
極大の黒点数:90
(これまでの平均:114)

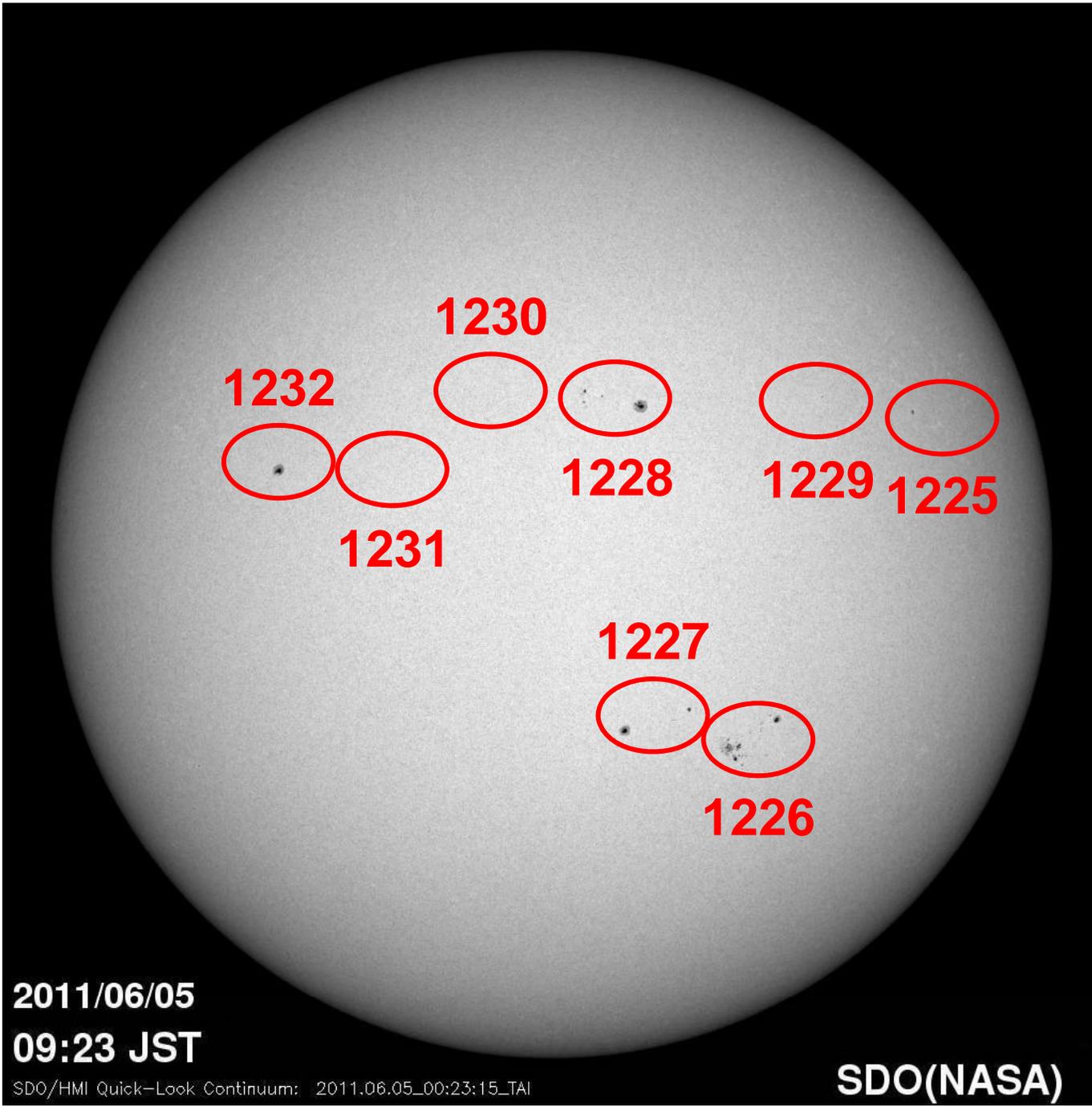
ISES Solar Cycle F10.7cm Radio Flux Progression
Observed data through May 2011



(サイクル23の極小:2008年12月)





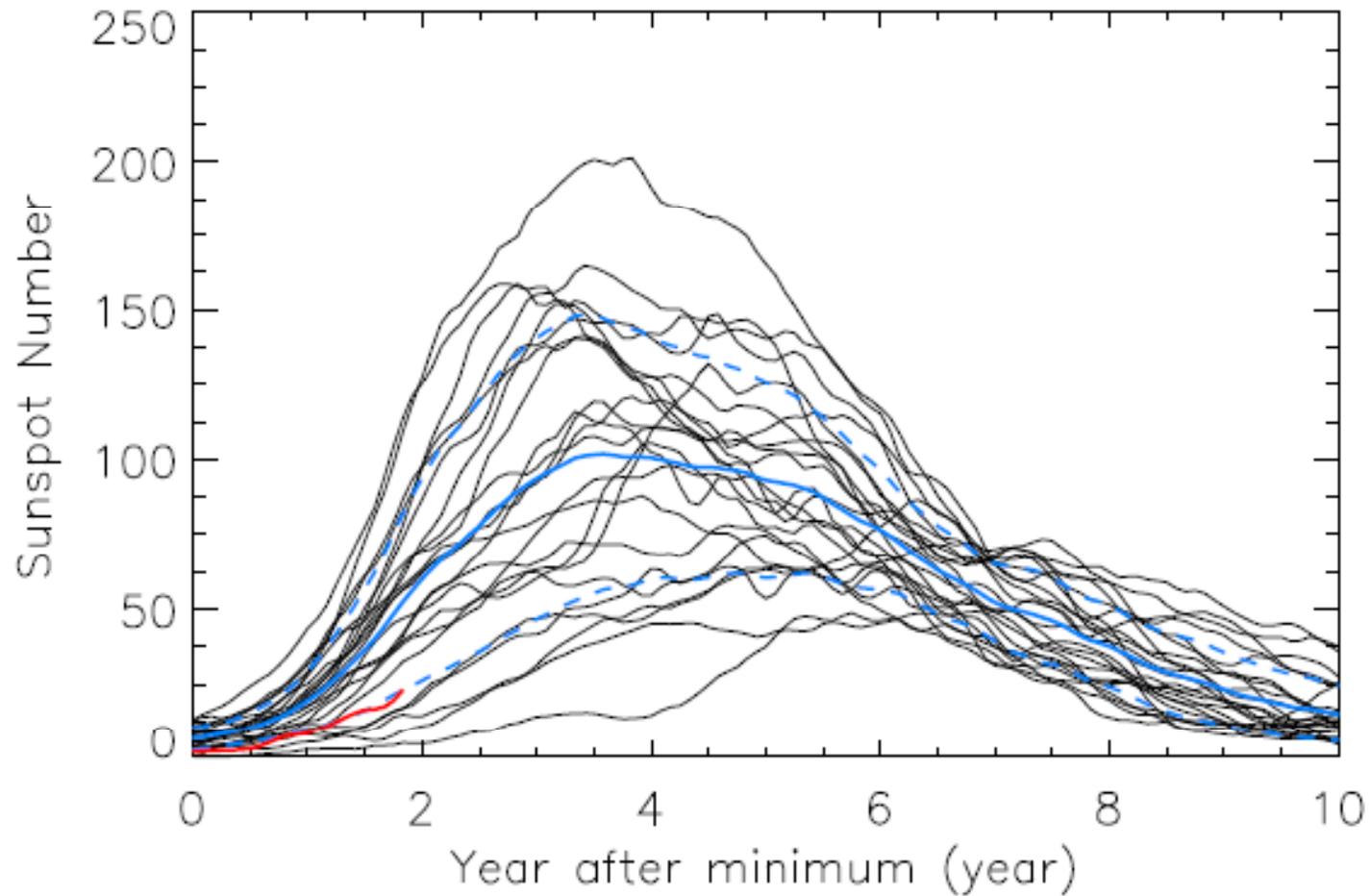


2011/06/05
09:23 JST

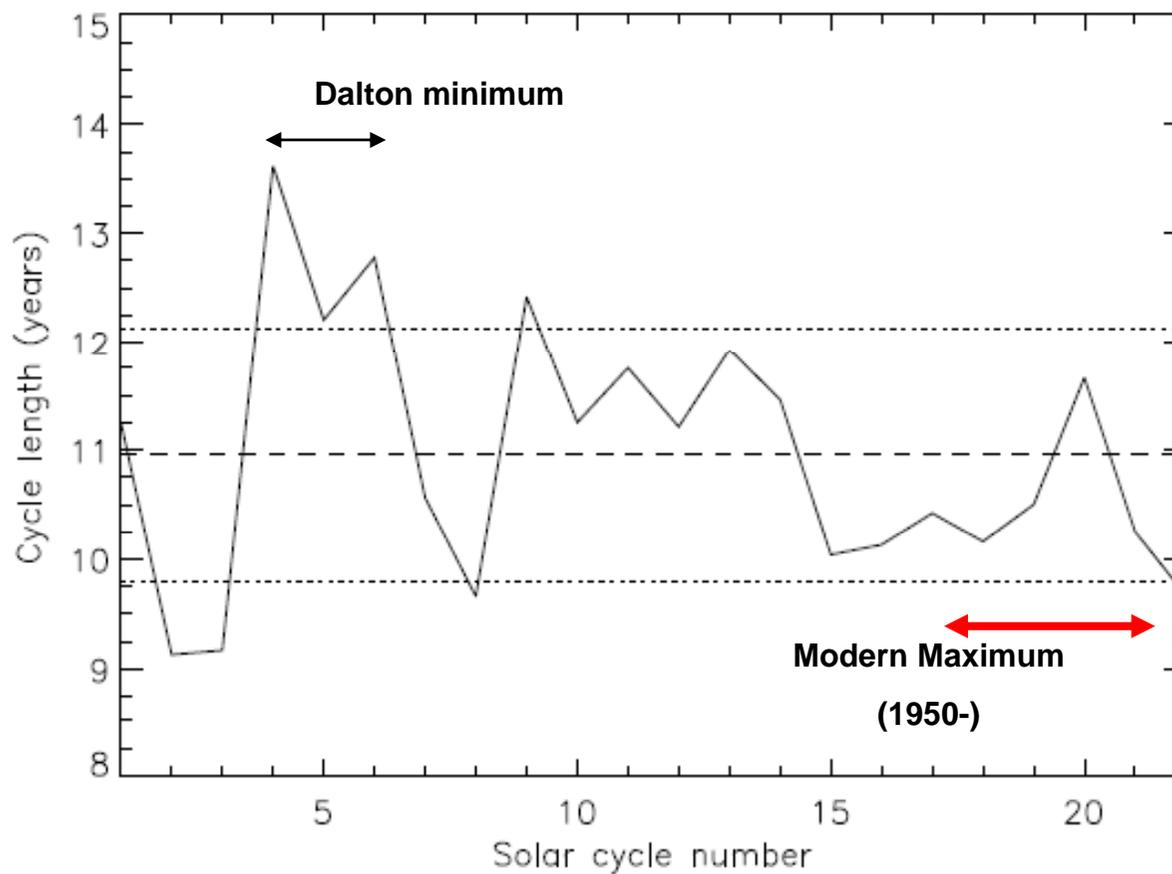
SDO/HMI Quick-Look Continuum: 2011.06.05_00:23:15_TAI

SDO(NASA)

太陽黒点数のサイクル毎の変動



サイクルの長さの変動



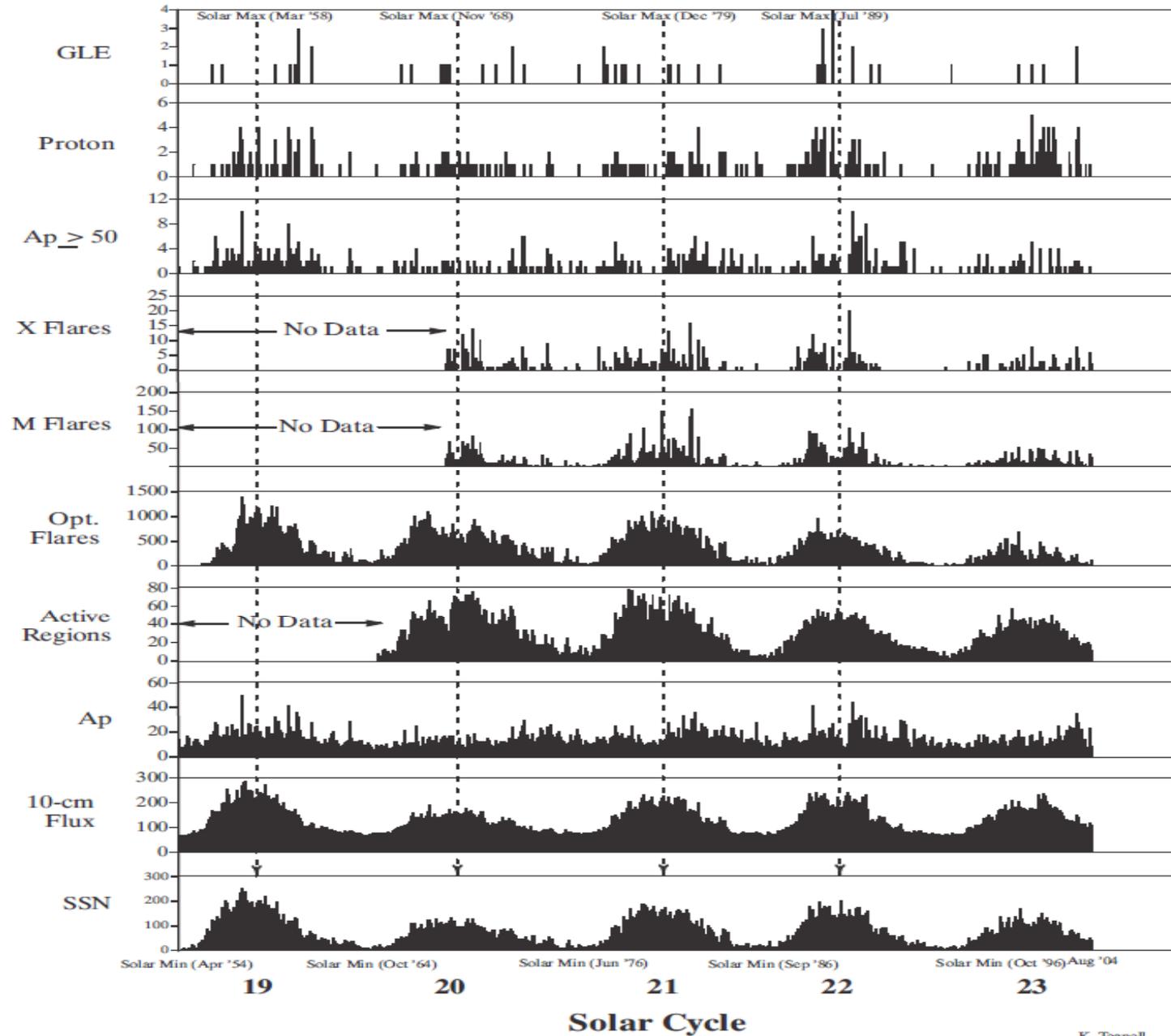


Space
Environment
Center

Solar-Terrestrial Indices

Monthly Values

August 2004 Month 95 STI 605



フレアの発生状況

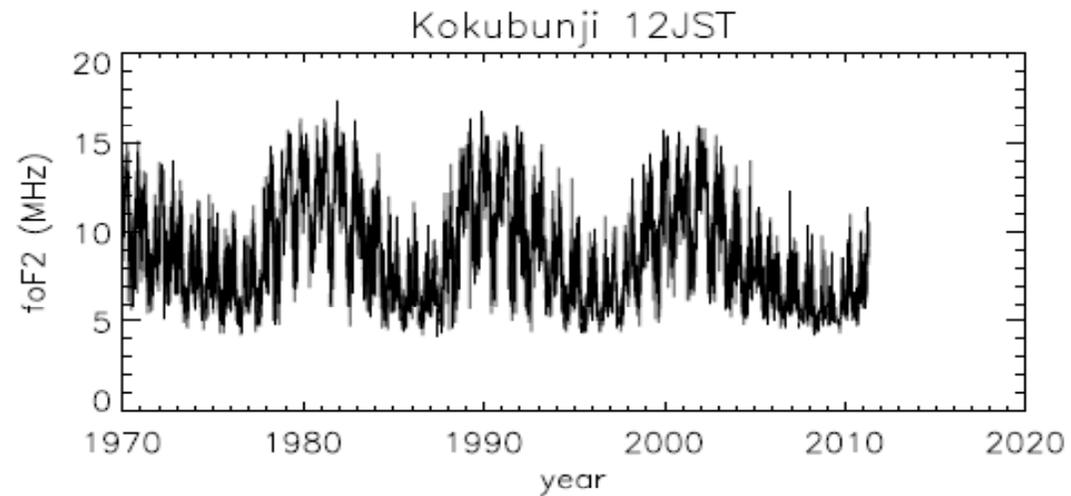
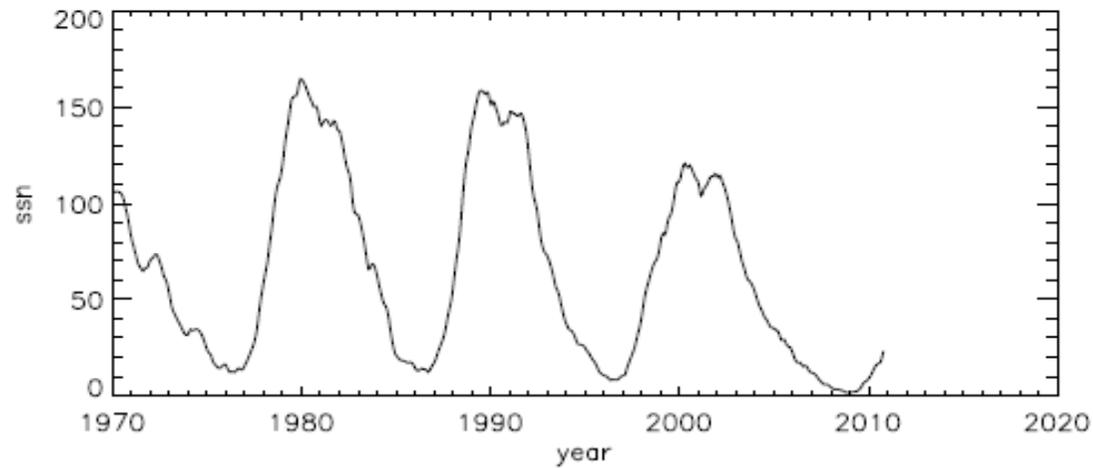
[太陽活動の現況]

最大のフレアによって色分けしています。

水色:Bクラス以下、緑:Cクラス、黄色:Mクラス、赤:Xクラス

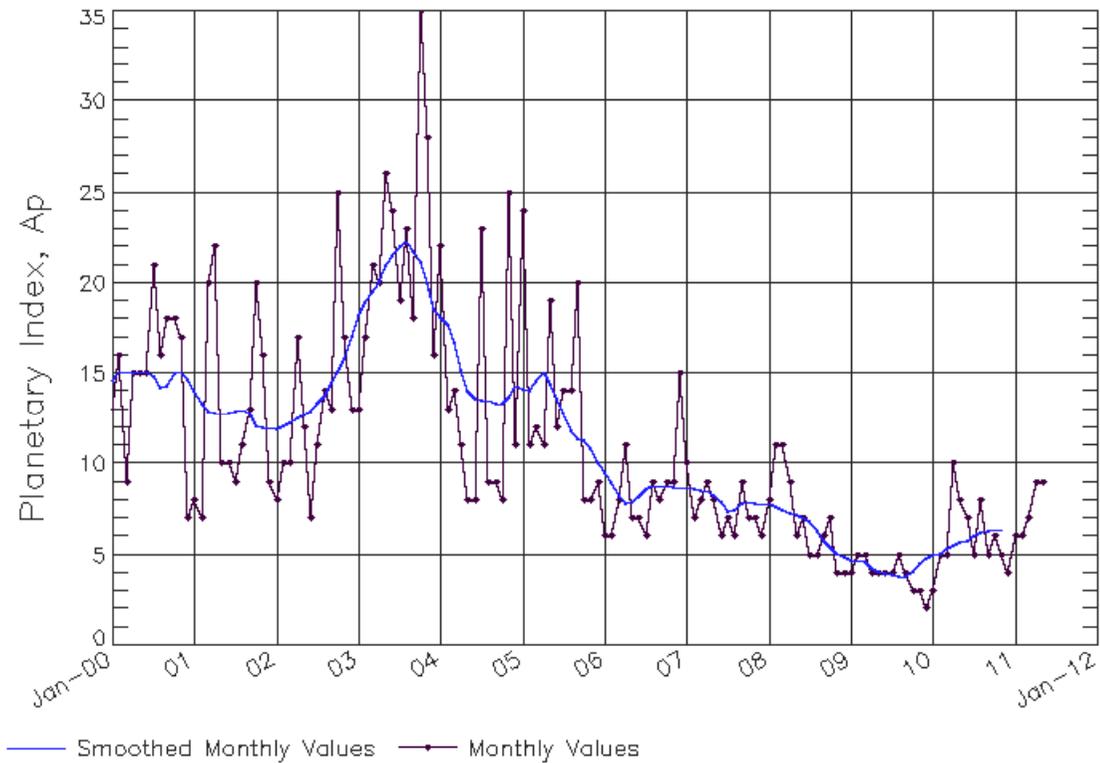
2010/01/14	B8.1	C1.3	B3.9	C2.1	C4.9	M2.3	M3.4	C4.9	B9.6	B4.4	B3.1	---	B6.7	B6.2	B4.0	---	B1.1	B4.8	B3.4	---	---	---	B3.6	M2.9	M6.4	M4.0	C2.7
2010/02/10	C3.7	C1.1	M8.3	C9.6	C4.3	C1.9	B2.6	B2.6	B1.8	B2.7	B1.2	B1.4	B2.5	---	B3.5	---	B1.1	B1.6	B1.1	B6.6	---	---	C2.2	B2.8	B5.2	B2.2	---
2010/03/09	---	B3.0	B4.6	C2.3	C1.5	C1.3	B1.7	---	B1.6	B7.5	B1.4	B8.1	B6.8	B1.3	B5.9	B1.8	B7.3	C2.5	C3.8	B4.0	---	B1.3	---	---	B1.7	B7.4	---
2010/04/05	B1.8	B1.5	---	B3.7	B3.7	---	---	---	B3.7	---	---	---	B2.1	---	---	---	---	---	---	B1.1	---	---	---	---	---	C2.2	C5.7
2010/05/02	B3.8	B2.0	C3.6	M1.2	B1.4	C2.0	C9.3	B2.1	B1.4	B1.5	B1.6	B2.8	---	---	---	---	---	---	---	B1.3	B1.4	B1.1	B6.5	---	B1.4	---	
2010/05/29	---	---	---	---	B1.2	B1.3	---	---	B1.4	B2.0	B1.4	B5.1	---	B6.3	M2.0	M1.0	C1.5	---	---	B5.0	B1.8	---	---	B1.3	B2.1	B1.6	---
2010/06/25	B3.4	B1.0	B1.5	---	B1.4	---	B1.0	---	---	---	---	B1.0	B2.9	C1.2	C3.4	B7.2	B4.5	B4.0	C2.6	C1.4	B1.2	B3.1	C2.4	B2.1	B5.5	C1.4	B8.5
2010/07/22	B9.8	B9.3	B3.1	B2.3	B5.8	C2.2	C2.8	B7.5	B9.0	B7.4	C3.2	B8.9	B5.2	B6.6	C1.3	B5.6	M1.0	B2.3	B1.8	B8.1	B3.9	B2.5	B3.4	C4.4	C5.4	C1.4	C1.5
2010/08/18	C4.5	---	---	---	---	---	---	---	B2.6	B4.7	B1.0	---	B1.4	---	---	---	B2.8	B6.0	B5.6	C2.5	B4.4	C3.3	---	B5.5	B5.0	B1.9	B2.1
2010/09/14	---	B9.1	B4.6	C1.3	B4.2	B3.6	C2.1	C1.4	B8.5	B2.6	B2.9	B4.0	B7.3	B6.1	C2.0	B6.6	B7.0	B5.3	B5.0	B2.3	C2.3	B5.0	---	B1.5	B1.6	B3.2	B5.5
2010/10/11	---	---	B4.0	B3.9	B1.2	M2.9	C1.7	C2.5	C1.3	C1.5	B3.1	B1.8	B4.7	B4.1	C2.3	C1.1	C1.2	B2.0	B4.0	B6.5	C5.7	C1.1	B3.3	C4.9	M1.6	M1.0	M5.4
2010/11/07	C5.4	B1.8	B3.0	B9.0	C4.7	C4.6	C1.3	B3.7	C2.3	B4.5	B7.8	B4.0	B2.0	B2.8	B2.2	---	B1.3	---	B2.9	---	---	B2.5	B2.6	B8.1	C1.0	B2.7	B5.3
2010/12/04	B5.6	B4.2	---	B1.9	B1.4	B1.3	B2.4	B4.0	B5.9	B2.7	C2.3	C5.3	B7.4	B4.9	---	B1.1	---	---	---	---	---	---	---	B1.5	---	B4.3	
2010/12/31	---	C1.3	B8.3	B4.6	C1.1	C1.9	B4.0	---	B5.1	B2.5	B1.3	B4.6	B3.1	B2.2	B3.7	C1.6	C1.1	B2.4	B5.8	B2.0	B2.5	B4.2	C3.3	C2.4	B2.8	C1.4	B1.0
2011/01/27	B3.2	C1.5	M1.3	B7.3	B2.3	B1.7	B3.0	B4.1	B2.6	B9.5	B3.6	---	B1.9	C4.0	M1.9	C4.7	B9.6	C2.6	M6.6	M2.2	X2.2	M1.6	C6.1	M6.6	C8.5	C1.7	C7.8
2011/02/23	B6.5	C1.2	M8.5	C1.6	C1.3	C4.2	M1.1	C6.0	C1.4	C5.4	C1.7	C2.9	C8.6	M3.7	M5.3	X1.5	M1.1	C5.5	M1.3	C6.7	M4.2	M1.0	C3.7	B5.4	B3.4	B7.1	C4.2
2011/03/22	C3.9	M1.4	M1.0	M1.0	C1.0	C3.1	C1.4	C1.2	C1.9	C2.6	C3.4	B8.3	C1.2	B6.6	B7.4	C1.9	C1.3	B7.4	C1.3	B5.1	C2.5	C3.1	C2.5	C4.9	M1.3	C5.7	C1.4
2011/04/18	C1.8	C1.0	C4.0	C8.5	M1.8	C2.4	C2.4	B9.3	---	C2.0	C2.4	C3.8	C3.2	C6.5	C1.2	C1.3	B9.3	B4.2	B3.9	B3.3	B4.4	C5.4	---	B8.1	C2.0	B2.2	B2.1
2011/05/15	C4.8	B5.7	B5.3	C2.0	B3.5	---	B2.7	B1.3	B1.9	---	C1.4	B4.4	C5.6	M1.1	M1.4	C7.0	C1.3	C4.1	C3.7	C2.5	B7.8	B3.5	C1.2	M2.5	B6.9	C4.1	C2.9
2011/06/11	B4.0	B8.6	C1.2	M1.3	C3.2	C7.1	C3.9	B8.8	C4.7	B4.0																	

国分寺のfoF2



Ap指数

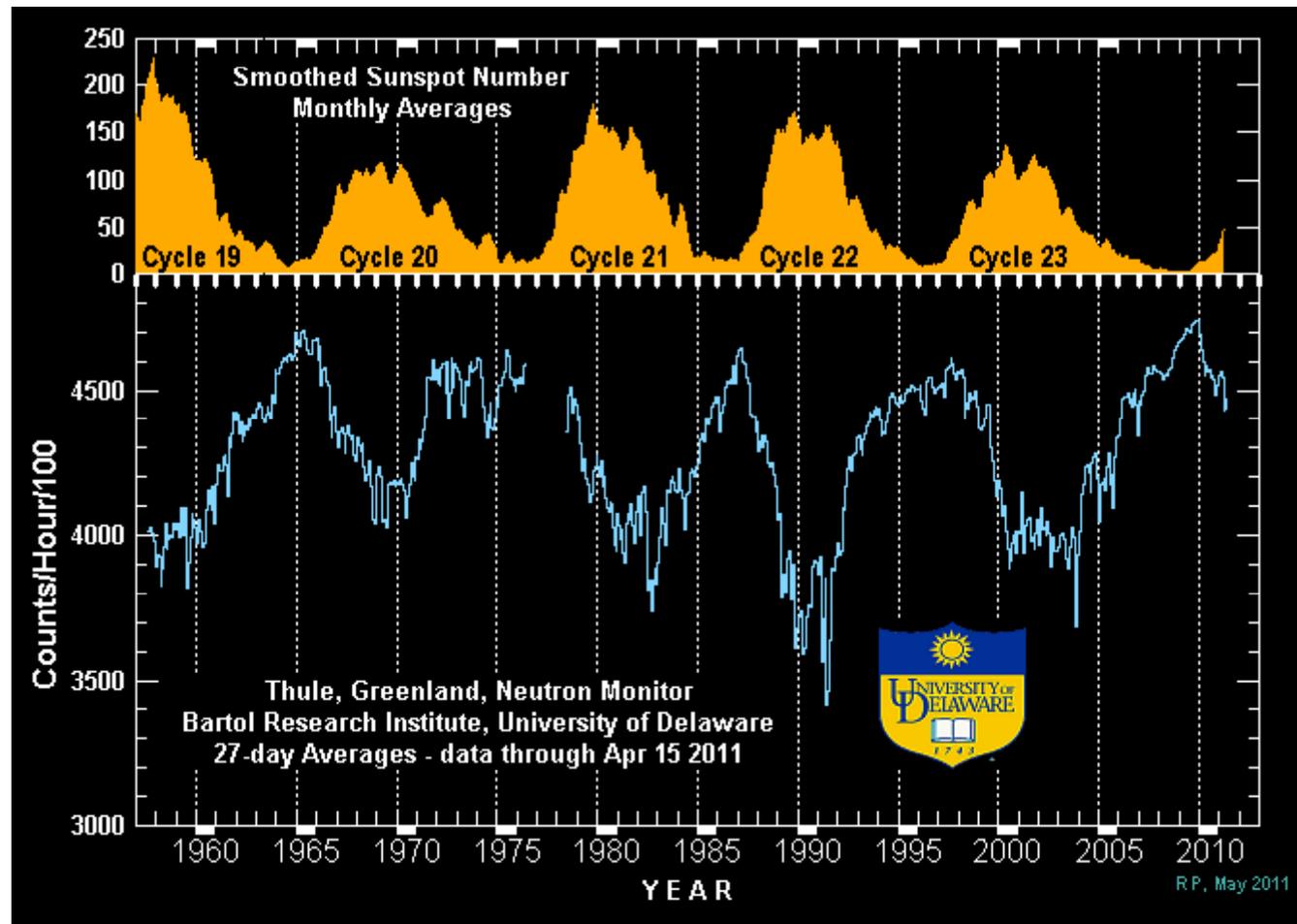
ISES Solar Cycle Ap Progression
Observed data through May 2011



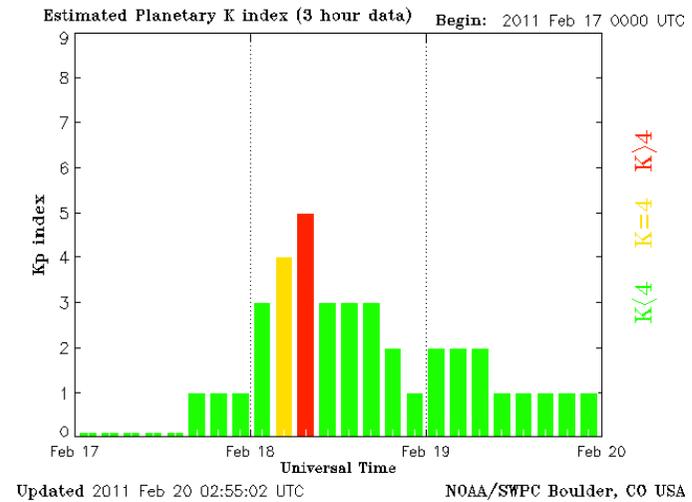
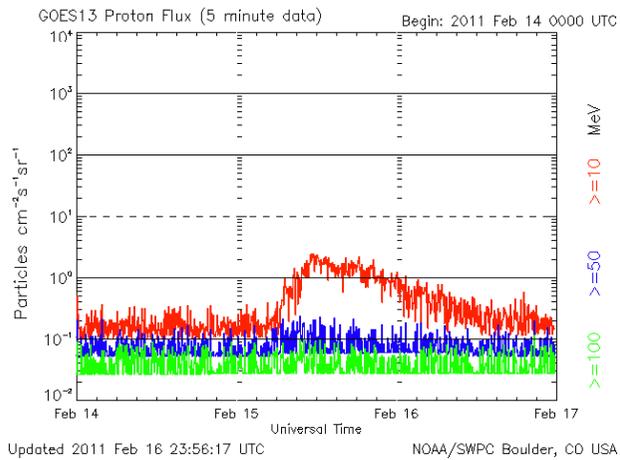
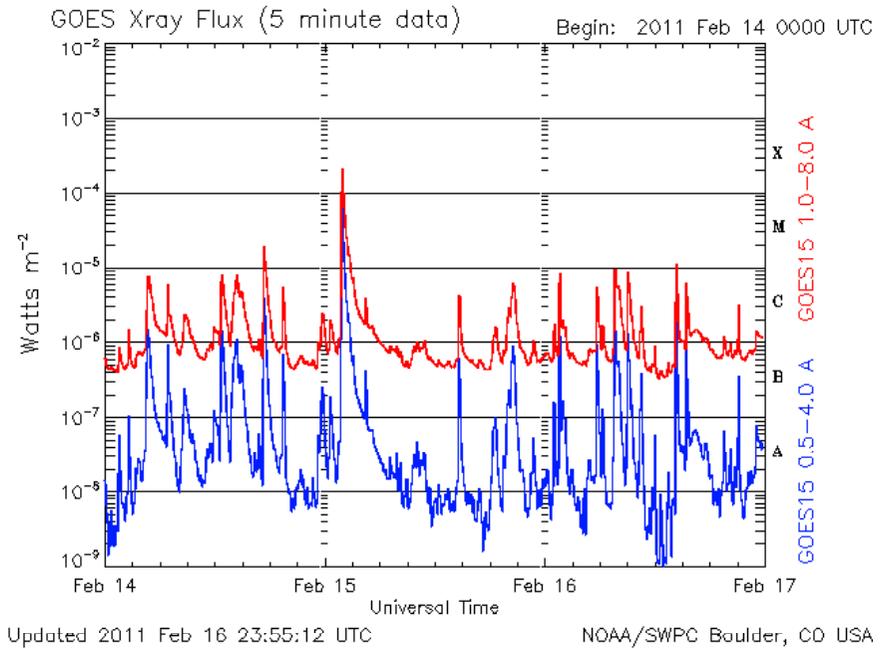
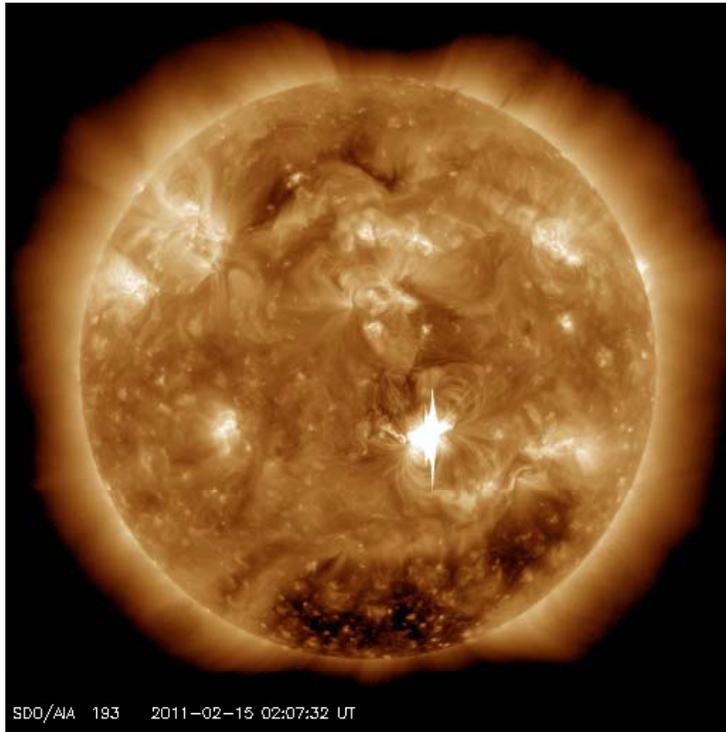
Updated 2011 Jun 7

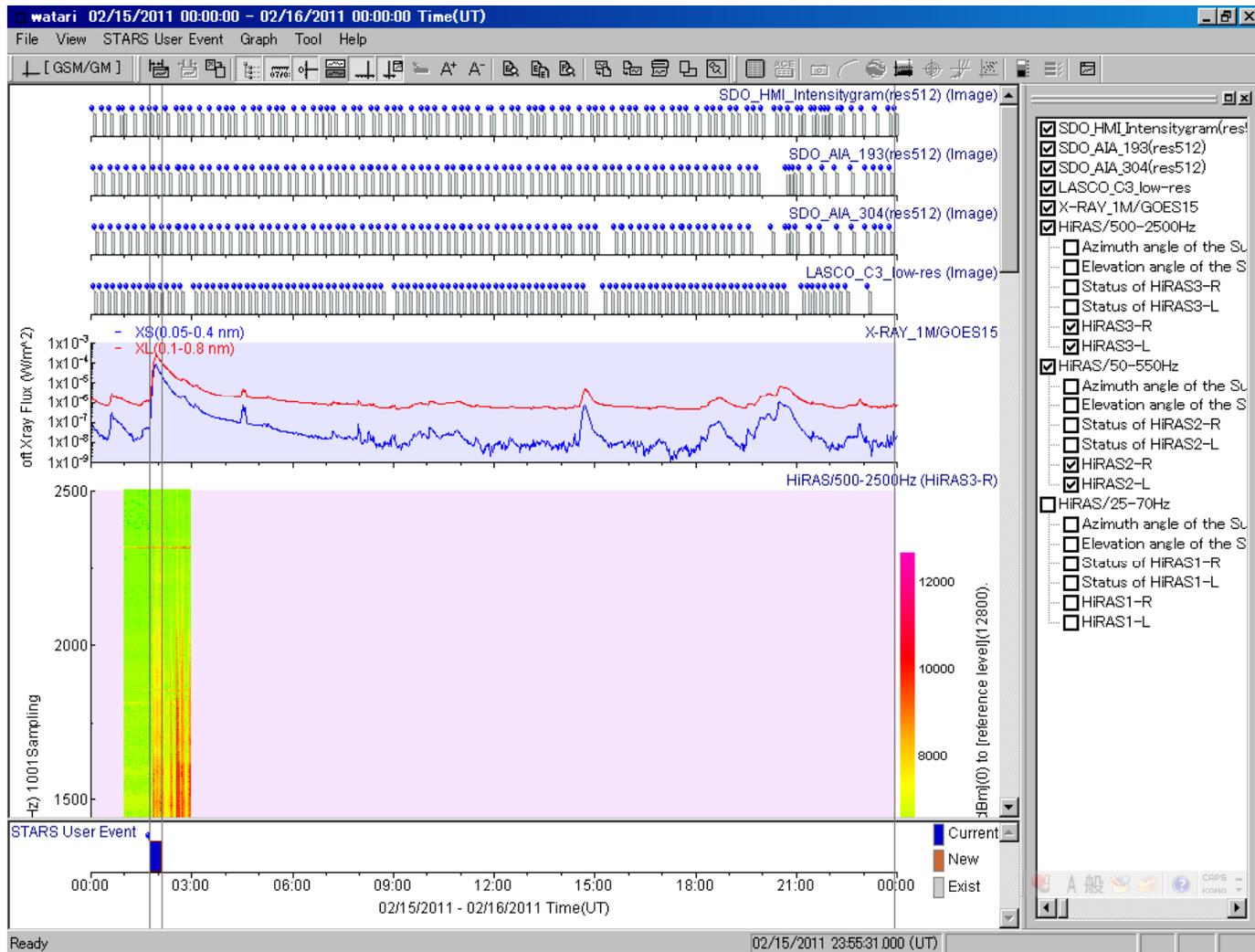
NOAA/SWPC Boulder, CO USA

太陽活動に伴う銀河宇宙線の変動



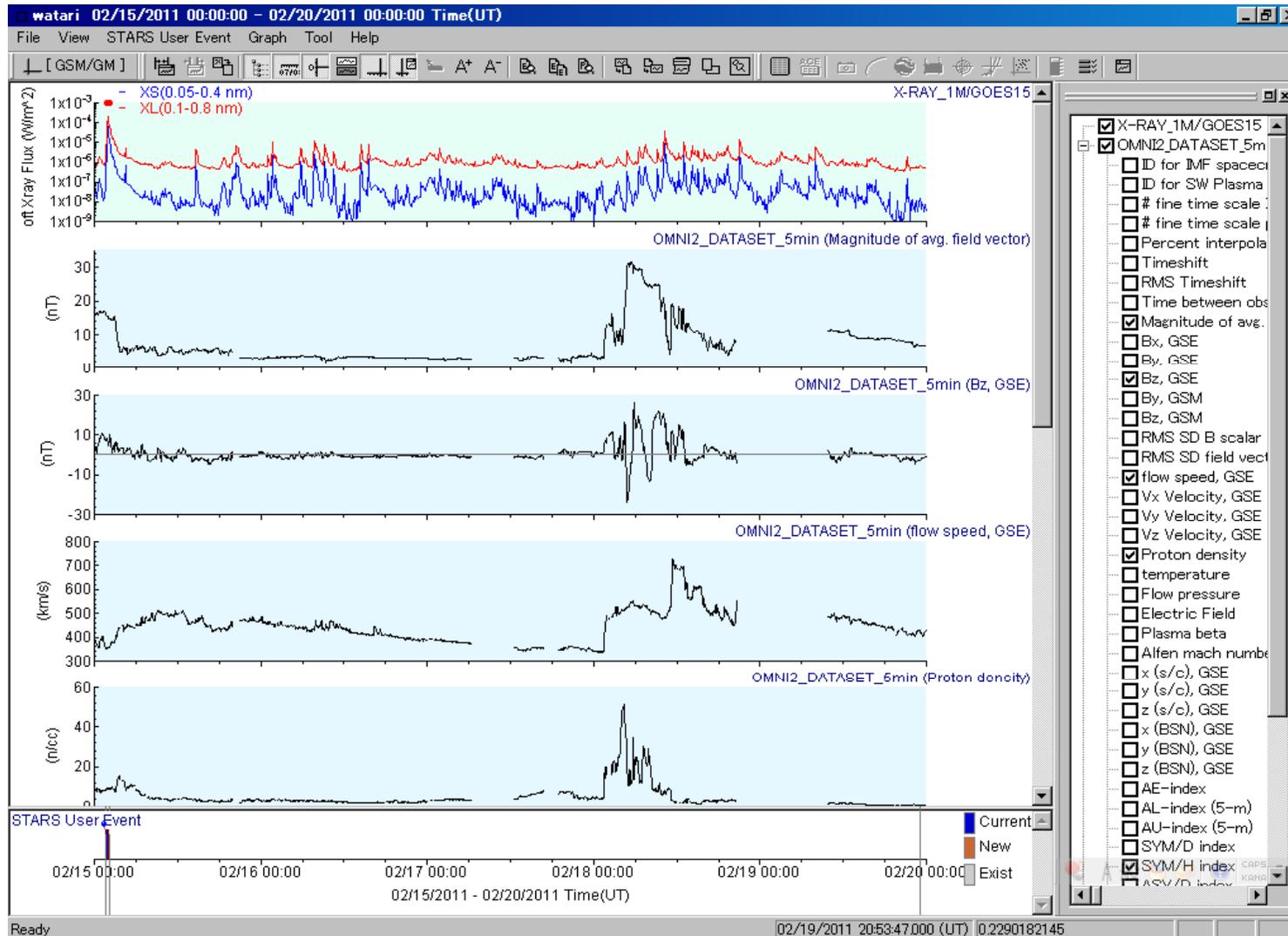
2011/02/15 X2.2クラスフレア





STARS A2





2011/06/07 M2.5クラスフレア

