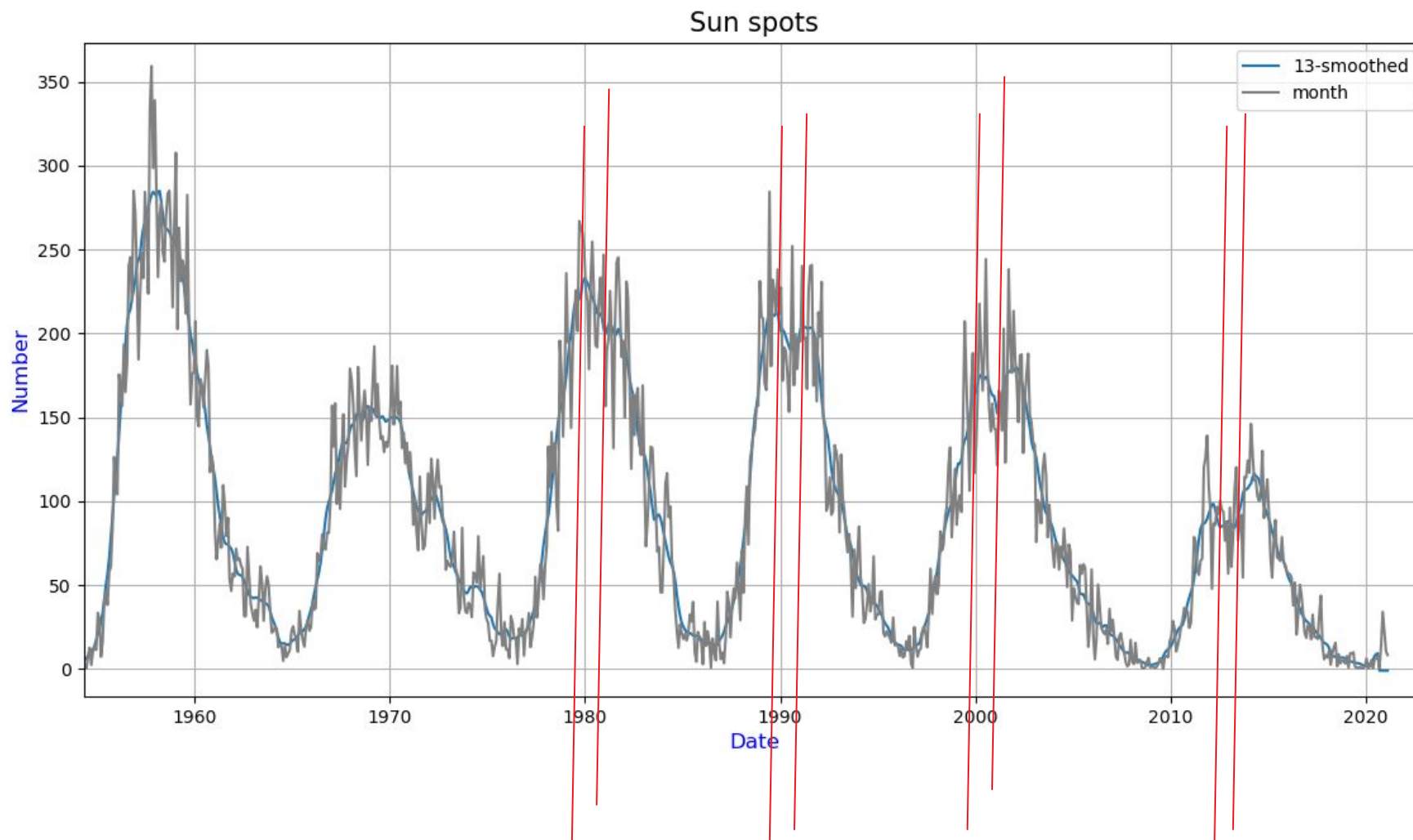


# **Солнечные космические лучи в периоды инверсии магнитного поля Солнца**

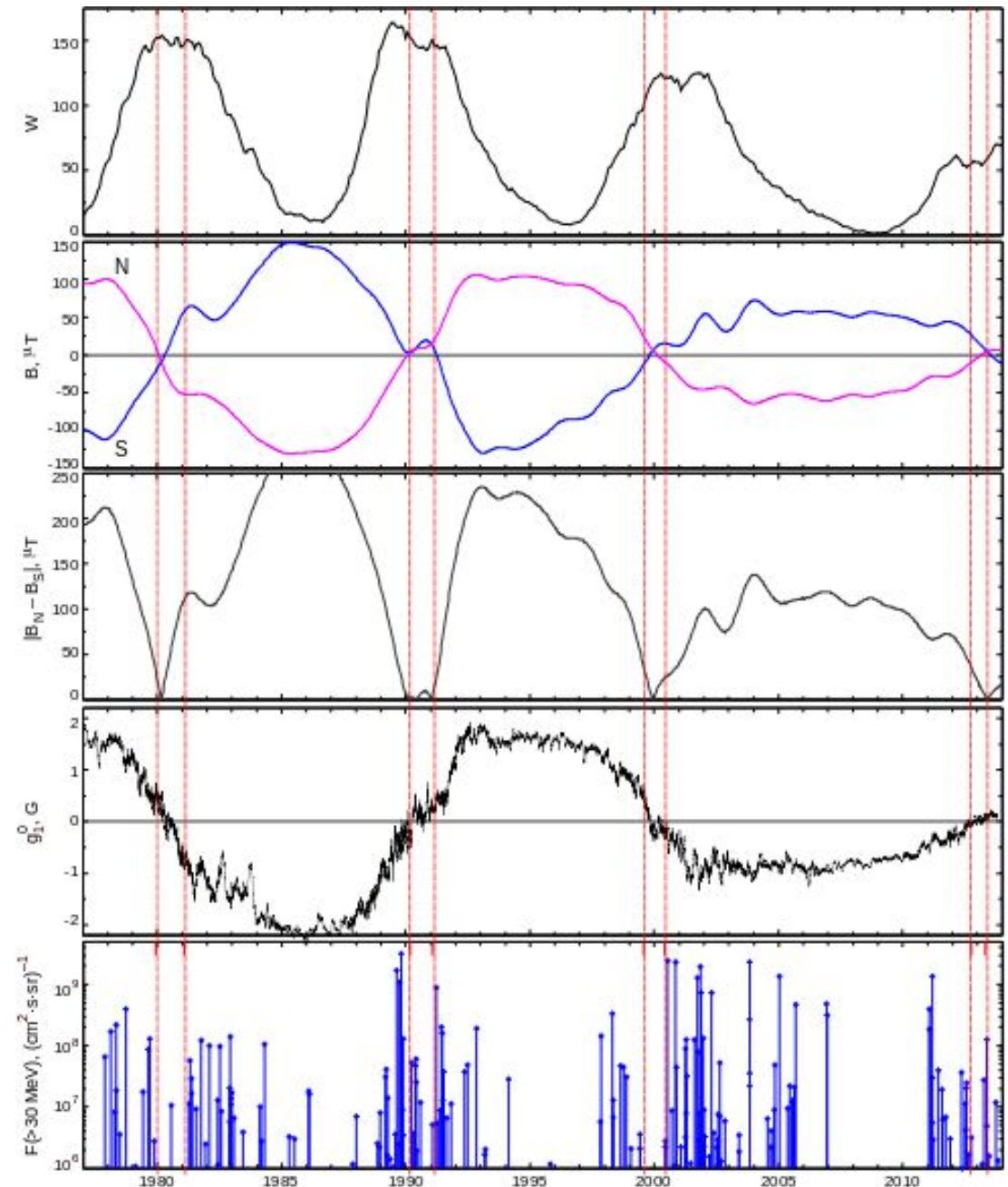
Студент Устинов К.А.  
Руководитель: к.ф.-м.н. Подзолко М.В.

# Цель работы: исследовать СПС в периоды смены знака магнитного поля Солнца



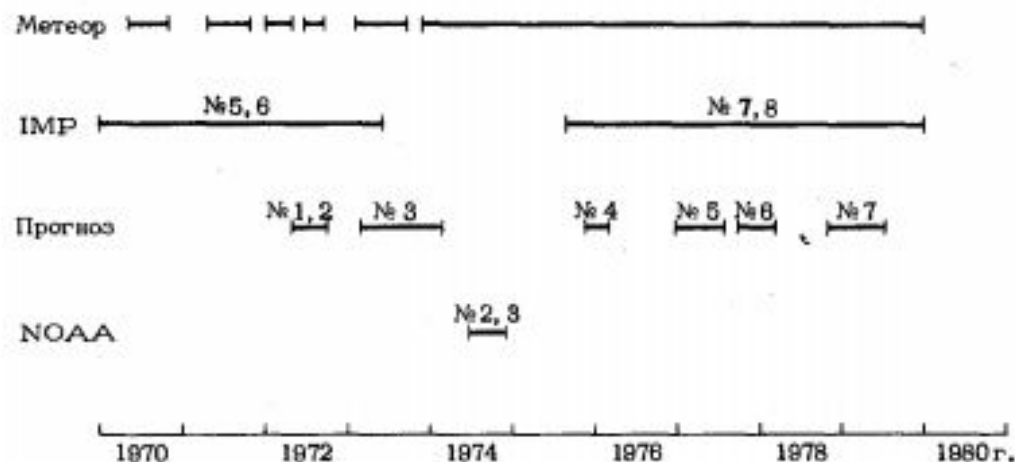
# Актуальность

- 1) Уточнение моделей СКЛ, применяемых для расчетов рад. условий полета спутников
- 2) Отсутствуют аналогичные результаты



# Данные по потокам

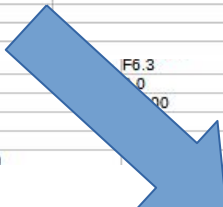
- 21 цикл — IMP-5,7,8 , Метеор
- 22 цикл — IMP-8,Метеор, GOES6
- 23 цикл — IMP-8,Прогноз-10
- 24 цикл — GOES-13,14



Spacecraft	Proton Energy, MeV
METEOR	>5, >15, >25, >30, >40, >90, >600
IMP8	13.7-25.2, 20-40, 40-80
GOES6,7	>10, >30, >50, >60, >100

# Обработка данных (Python-Pandas, NumPy, SciPy)

File	name:	g14_epead_coflux_5m_20181201_20181231			
Metadata	Description:				
dimensions:					
record	=	UNLIMITED		/(89:	
orbit	=		31		
variables:					
double	time_tag_orbit(orbit)				
time_tag_orbit:long_name	=	Date and time for each west_longitude and inclination pair			
time_tag_orbit:units	=	Date and time in the format YYYY-mm-dd hh:mm:ss.SSS UTC			
time_tag_orbit:calendar	=	gregorian			
float	west_longitude(orbit)				
west_longitude:description	=	West longitude of satellite sub-orbit point at the given date and time.			
west_longitude:long_label	=	West longitude			
west_longitude:short_label	=	w long			
west_longitude:plot_label	=	West longitude			
west_longitude:lin_log	=	lin			
west_longitude:units	=	degrees			
west_longitude:format	=	F6.3			
018-12-04	17:25:00.000		01.7541E+01	04.7591E-01	04.418
018-12-04	17:30:00.000		01.8629E+01	04.3105E-01	03.133
018-12-04	17:35:00.000		01.5626E+01	03.7754E-01	03.053
018-12-04	17:40:00.000		01.3316E+01	03.3832E-01	03.043
018-12-04	17:45:00.000		01.2889E+01	03.3588E-01	03.018
018-12-04	17:50:00.000		01.3342E+01	03.0823E-01	02.742
018-12-04	17:55:00.000		99999-99999.0	99999-99999.0	99999-99999
018-12-04	18:00:00.000		99999-99999.0	99999-99999.0	99999-99999
018-12-04	18:05:00.000		01.3185E+01	03.0573E-01	02.711
018-12-04	18:10:00.000		01.3220E+01	03.0511E-01	02.711
018-12-04	18:15:00.000		01.8325E+01	04.6337E-01	03.438
018-12-04	18:20:00.000		01.8886E+01	04.0022E-01	02.785
nclination:format	=	F6.3			
nclination:nominal_min	=	0			
nclination:nominal_max	=	90			
nclination:missing_value	=	-99999			
double	time_tag(record)				



YYYY	MM	DD	hh	p>1MeV	p>5MeV	p>10MeV	p>30MeV	p>50MeV	p>60MeV	p>100MeV	mm	p>1MeV	p>5MeV	p>10MeV	p>30MeV	p>50MeV	p>60MeV	p>100MeV
2018	11	01	0	7.83344	0.40406	0.31018	0.22305	0.18466	0.17456	0.14645	00	18.646	0.43002	0.39454	0.24155	0.18227	0.16964	0.14375
2018	11	01	1	6.29765	0.46342	0.37081	0.22598				05	18.759	0.38244	0.34697	0.28056	0.24605	0.23643	0.21063
2018	11	01	2	3.54678	0.37656	0.31584	0.23793	2018	12	01	00	18.992	0.32382	0.28834	0.22205	0.19041	0.1816	0.15584
2018	11	01	3	3.12341	0.39144	0.31008	0.22632	2018	12	01	00	21.035	0.31183	0.25396	0.17706	0.16704	0.16425	0.13875
2018	11	01	4	2.7589	0.43507	0.31135	0.20905	2018	12	01	00	21.667	0.38653	0.32674	0.25553	0.21045	0.19789	0.17197
2018	11	01	5	1.70895	0.41505	0.32096	0.21649	2018	12	01	00	18.434	0.32281	0.28733	0.22167	0.20621	0.20191	0.17634
2018	11	01	6	1.38793	0.42456	0.35585	0.22913	2018	12	01	00	33.122	0.45265	0.27263	0.20103	0.19101	0.18821	0.16271
2018	11	01	7	1.68643	0.37543	0.3273	0.23645	2018	12	01	00	39.247	0.51349	0.23334	0.16081	0.11803	0.1061	0.08021
2018	11	01	8	2.10338	0.37537	0.31448	0.23012	2018	12	01	00	25.84	0.40823	0.30635	0.22892	0.2189	0.21611	0.19061
2018	11	01	9	2.69169	0.36344	0.28198	0.21064	2018	12	01	00	18.562	0.33708	0.3016	0.23616	0.22614	0.22335	0.19785
2018	11	01	10	4.15742	0.41964	0.36361	0.23065	2018	12	01	00	18.855	0.30706	0.27159	0.20614	0.19612	0.19333	0.16783
2018	11	01	11	5.28939	0.41928	0.34906	0.20597	2018	12	01	00	18.351	0.31011	0.27463	0.20795	0.16636	0.15477	0.1289
2018	11	01	12	7.54562	0.42861	0.33909	0.2151	2018	12	01	00	18.778	0.37211	0.33664	0.27077	0.24993	0.24412	0.21849
2018	11	01	13	8.89087	0.43944	0.36029	0.23231	2018	12	01	01	27.207	0.50128	0.349	0.26098	0.2126	0.19911	0.17316
								2018	12	01	05	21.658	0.46231	0.40520	0.23421	0.20387	0.2714	0.24554



