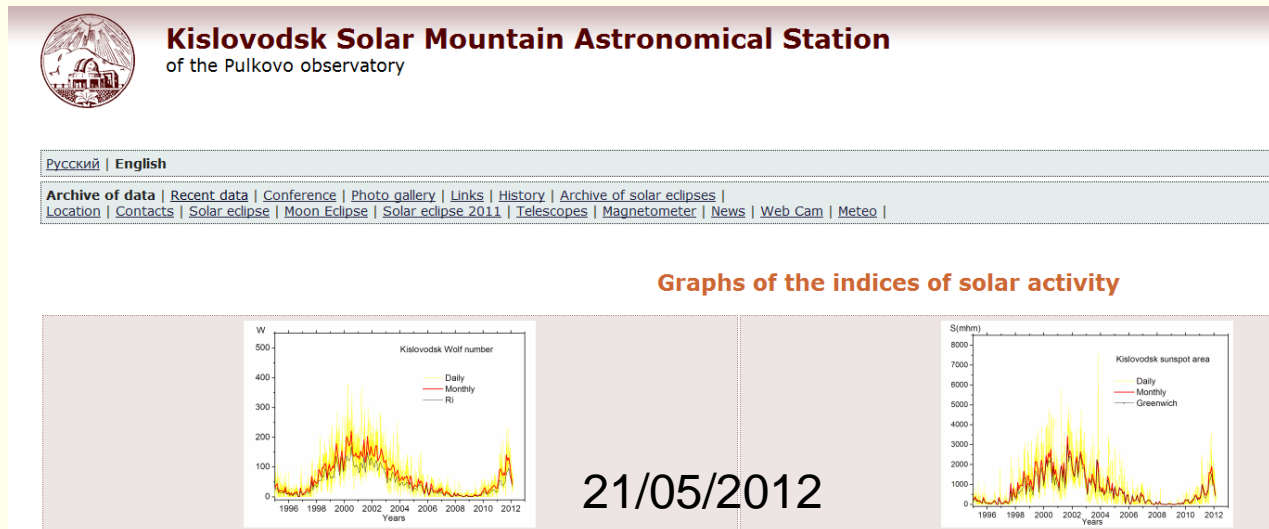


Kislovodsk (USSR, Russia) sunspot indices

<http://www.solarstation.ru>



These indices are not a compilation of measurements obtained by different observatories. The measurements were performed on a single observatory, typically a single observer. Education Observer longer than 5 years. In the missed days of observations used images from other observatories. Such a processing system was put into 1948-1959 by Gnevyshev.

[Daily maps of the Sun](#)

[H-alpha synoptic maps](#)

[Graphs of the indices of solar activity](#)

[Solnechnye Dannye 1996-2003](#)

[The report 2004-2012](#)

[Radio data](#)

[Sunspot group reports](#)

[The daily Wolf numbers Area](#)

[Polar Fakeles](#)

[Kislovodsk prominences](#)

[Kislovodsk filaments](#)














[Plage in KCaII](#)

Andrey

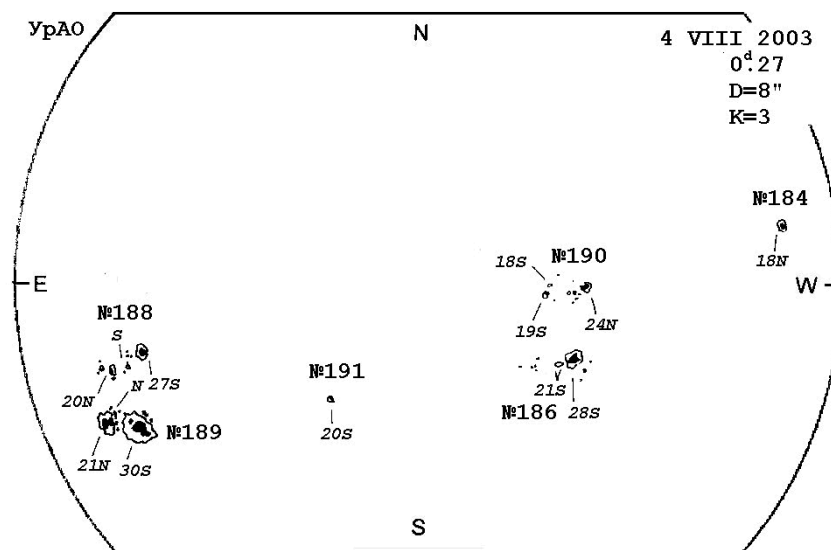
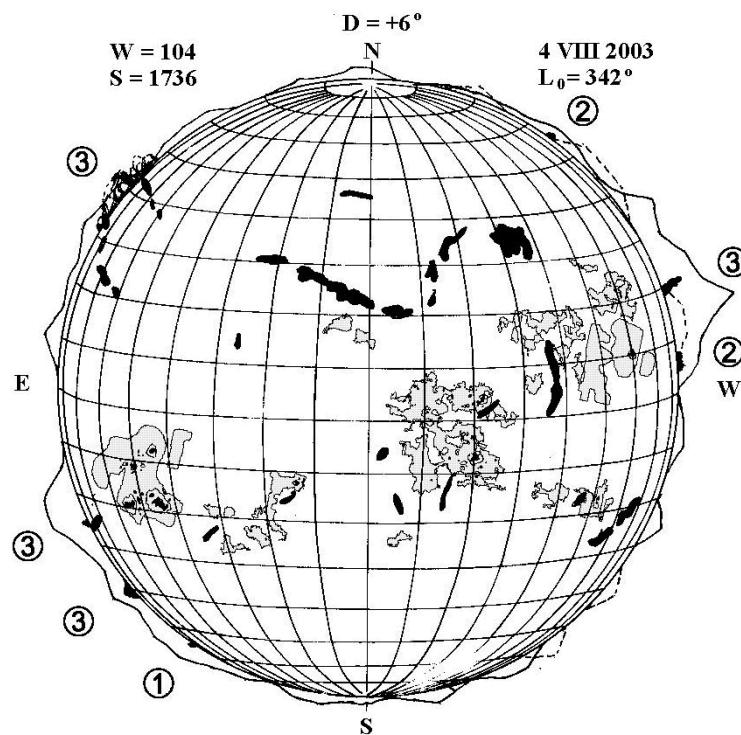
Tlatov

Sunspot group reports 1954-2012

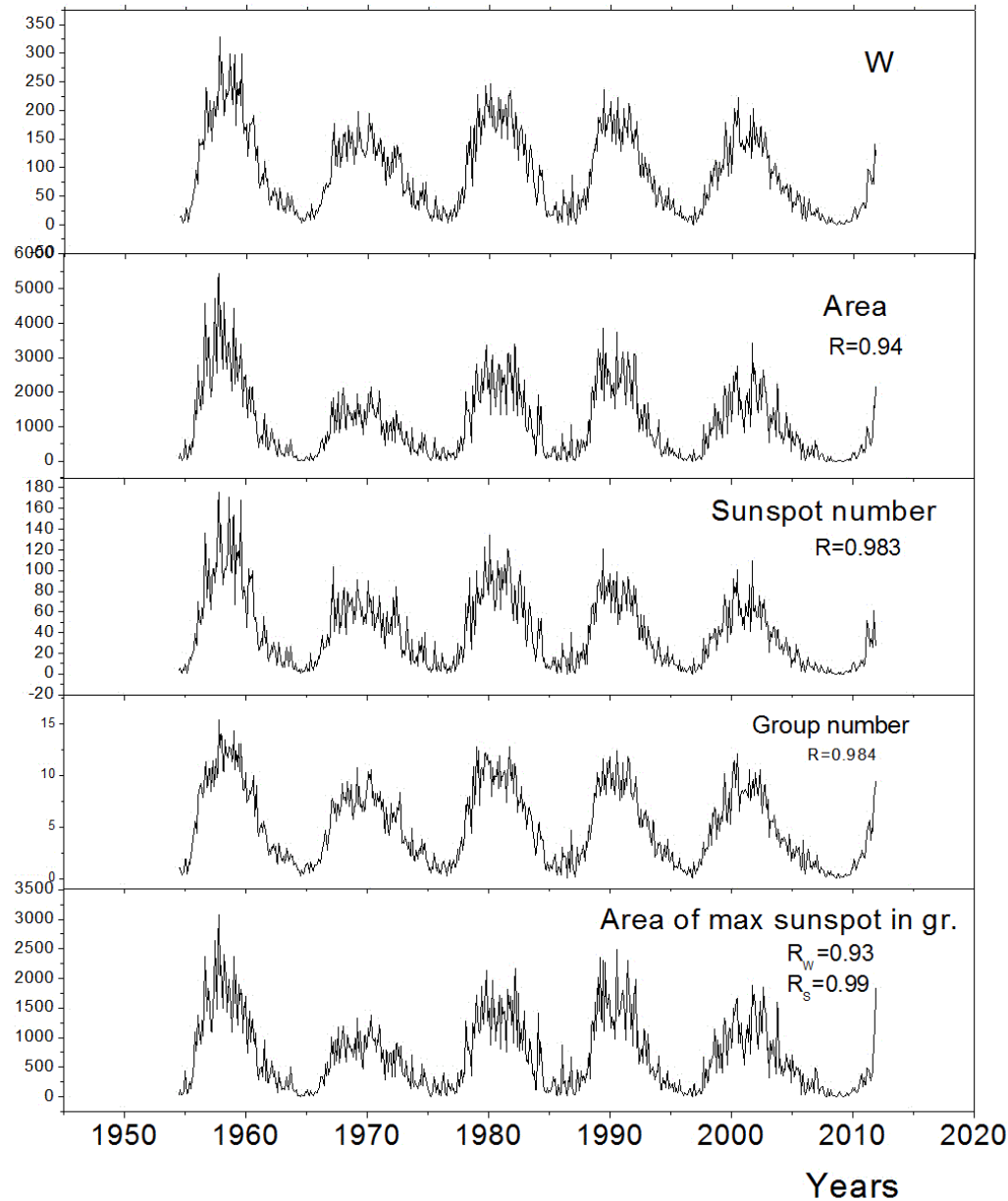
yyyymmdd.dd	Ngr	Lat	Lng	r/R	Sd	Smhs	Smx	Nsp
20120101.28	349	-19.0	147.6	0.59	153	94	94	1
20120101.28	354	-24.1	101.2	0.41	239	131	131	1
20120101.28	355	-16.8	86.3	0.51	465	270	263	3
20120101.28	356	-24.8	80.2	0.63	534	344	239	9
20120102.39	349	-18.9	147.5	0.76	150	115	115	1
20120102.39	353	9.5	120.3	0.41	122	67	22	5
20120102.39	354	-24.4	100.7	0.36	293	157	157	1
20120102.39	355	-18.3	86.8	0.34	571	303	303	1
20120102.39	356	-25.6	77.2	0.52	664	389	191	9
20120102.39	1	-23.6	66.8	0.61	7	5	5	1
20120105.31	353	10.2	122.9	0.89	268	294	271	4
20120105.31	354	-24.8	99.4	0.68	158	108	108	1
20120105.31	355	-18.5	86.9	0.49	594	341	341	1
20120105.31	356	-25.2	80.6	0.48	37	21	7	5
20120105.31	2	20.3	70.3	0.43	36	20	10	2
20120105.31	3	17.5	53.1	0.38	111	60	13	8
20120105.31	4	13.1	8.4	0.82	508	444	379	10
20120105.31	5	17.9	355.0	0.93	4	6	6	1
20120107.27	354	-24.7	98.9	0.90	79	91	91	1
20120107.27	355	-17.7	88.0	0.80	370	308	302	2
20120107.27	2	19.8	71.4	0.68	125	85	48	4
20120107.27	3	17.7	54.6	0.48	412	235	128	8
20120107.27	4	12.7	10.7	0.49	901	517	379	13
20120107.27	5	18.8	356.5	0.70	22	15	7	3

Name	Last modified	Size	Description
 Parent Directory		-	
 k1954.dat	05-Nov-2008 10:08	12K	
 k1955.dat	21-Nov-2007 12:01	77K	
 k1956.dat	05-Nov-2008 10:08	235K	
 k1957.dat	05-Nov-2008 10:08	297K	
 k1958.dat	05-Nov-2008 10:08	323K	
 k1959.dat	05-Nov-2008 10:09	296K	
 k1960.dat	21-Nov-2007 12:03	223K	
 k1961.dat	21-Nov-2007 12:03	114K	
 k1962.dat	05-Nov-2008 10:09	71K	
 k1963.dat	05-Nov-2008 10:09	56K	
 k1964.dat	21-Nov-2007 12:03	36K	
 k1965.dat	05-Nov-2008 10:09	39K	

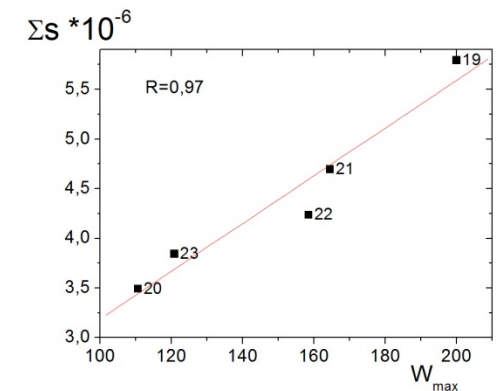
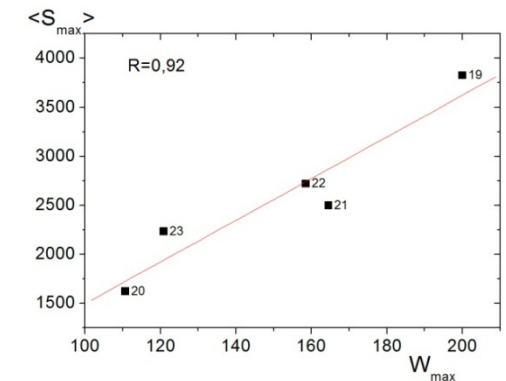
Yr	M	D	W	Wn	Ws	S	Sn	Ss
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1954	7	13	16	16	0	100	100	0
1954	7	14	13	13	0	42	42	0
1954	7	15	14	14	0	110	110	0
1954	7	16	11	11	0	30	30	0
1954	7	17	-					



Kislovodsk sunspot indices

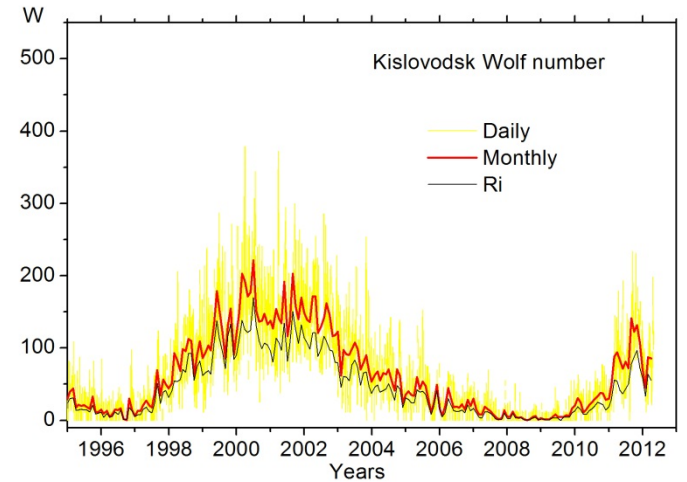
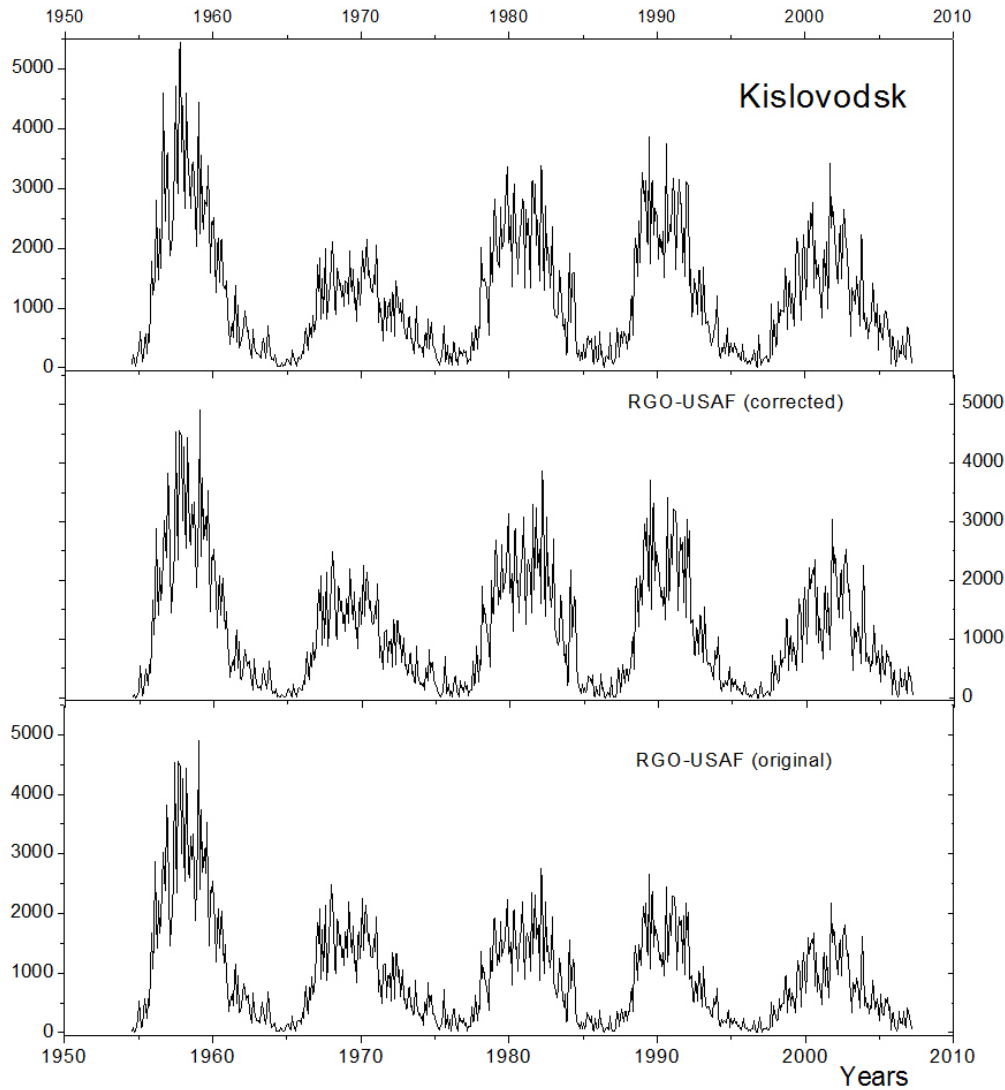


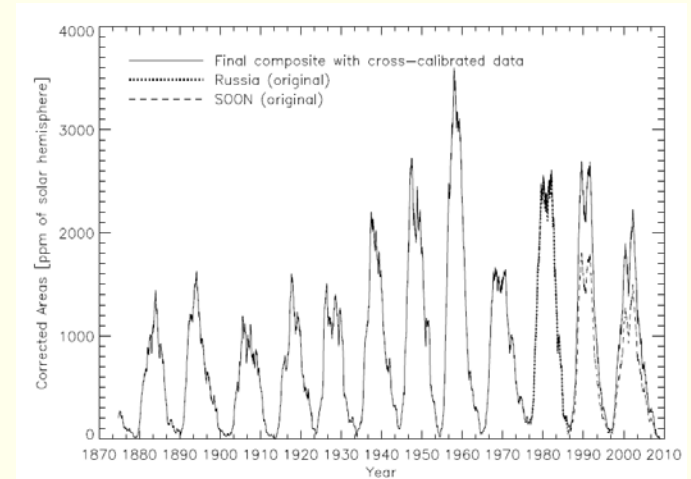
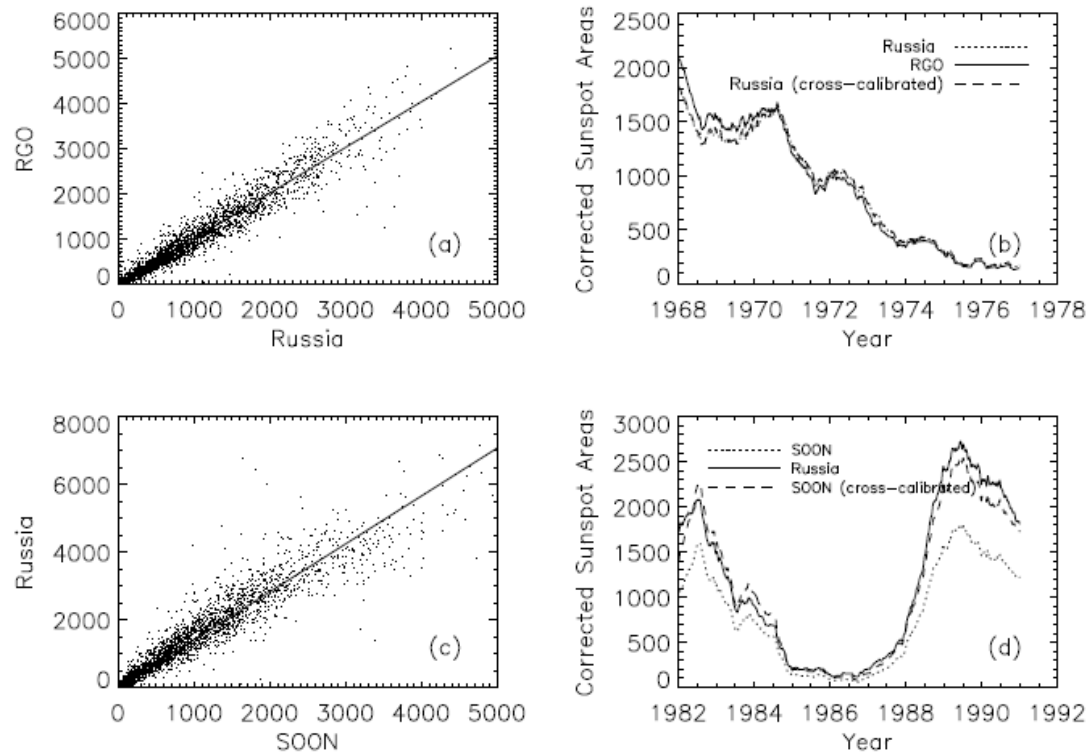
1. Daily coordinates and area of sunspot groups.
2. The number of spots and sunspots umbra in the group
3. The area of largest spot in the group.
4. Wolf number



The indices of sunspots are available 1954-2012

Monthly sunspot area



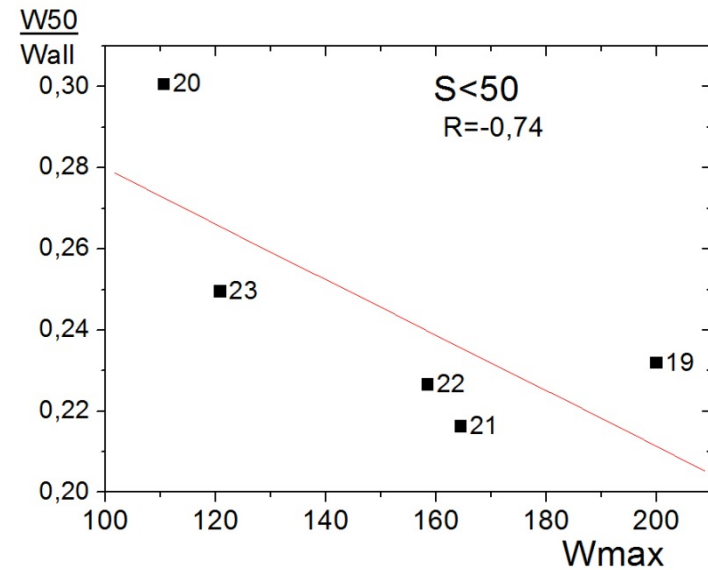
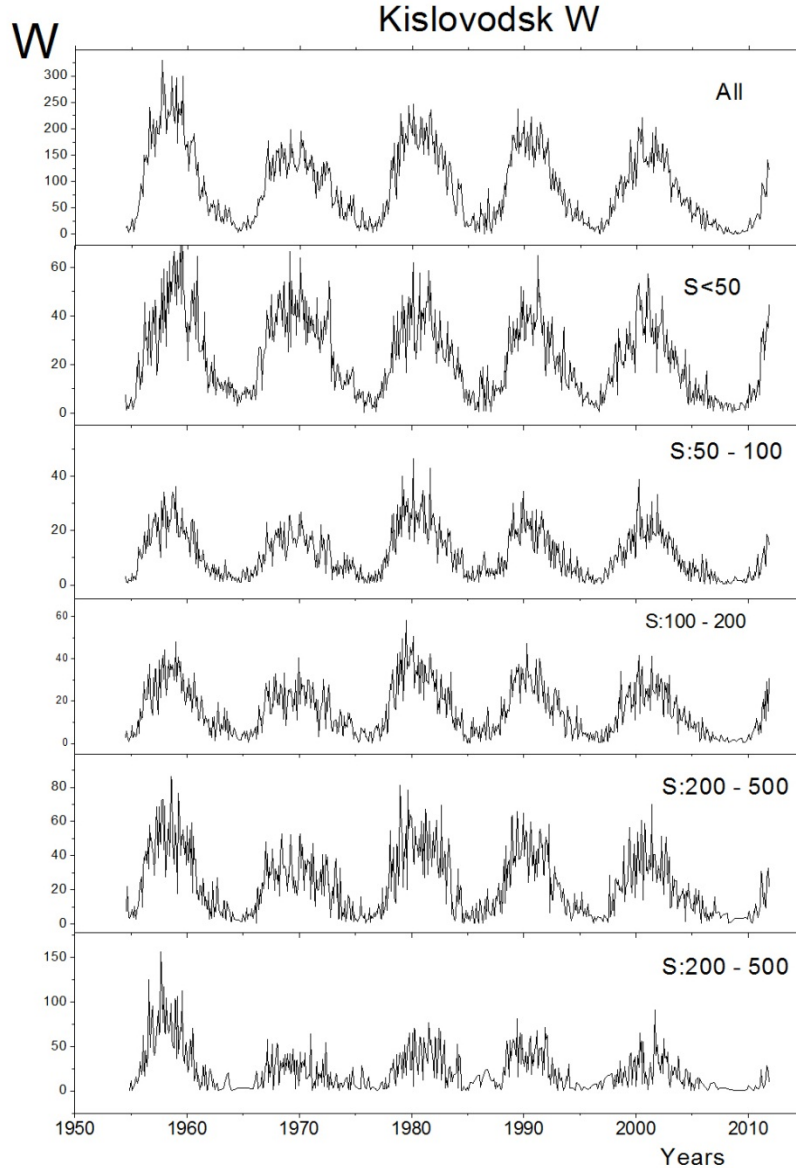


(Figure) 12-month running means of sunspot areas corrected for foreshortening of the final composite using the factors given in Table 2 (solid curve). Also plotted are the Russian and SOON data entering the composite prior to calibration.

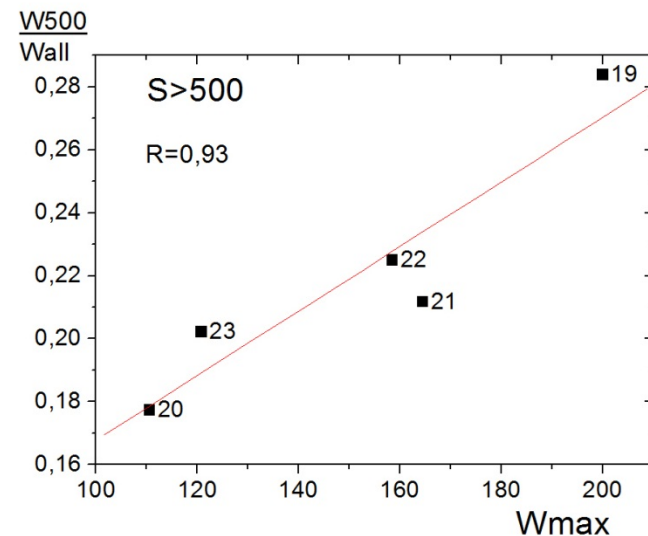
(Figure). Comparison of sunspot areas corrected for foreshortening obtained by different observatories. Top: RGO vs Russia, bottom: Russia vs SOON. Left: scatter plots. Solid lines represent linear regressions to the data neglecting a possible offset (i.e., forced to pass through zero) as well as data points close to the origin and the outliers lying outside the ± 3 interval from the fit. Right: 12-month running means of sunspot areas vs time. Solid curves show the data used as basis level, dotted are the data from the second observatory and dot-dashed the calibrated areas.

Conclusion: In this work, we have compared sunspot areas measured at different observatories. We found a good agreement between sunspot areas measured by Russian stations and RGO, while a comparison of sunspot areas measured by the SOON network with Russian data shows a difference of about 40% for projected areas and 44% in areas corrected for foreshortening.

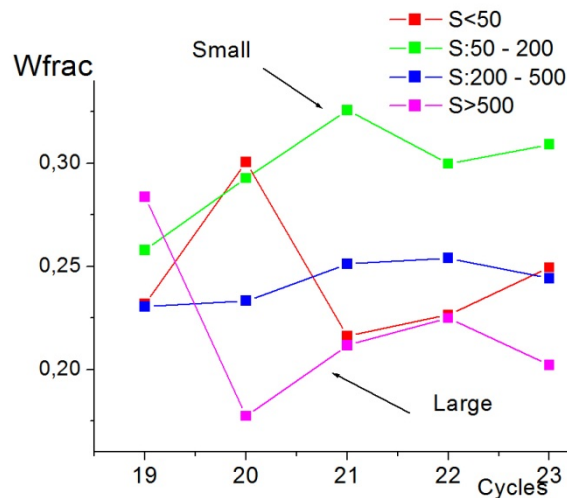
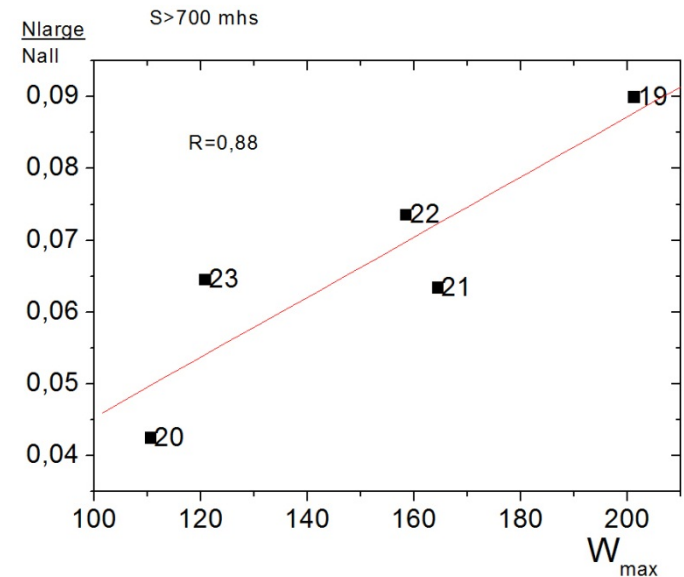
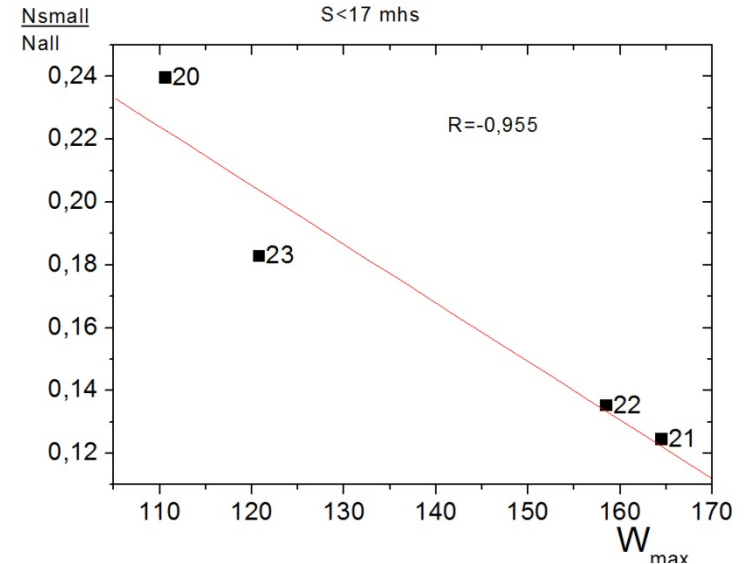
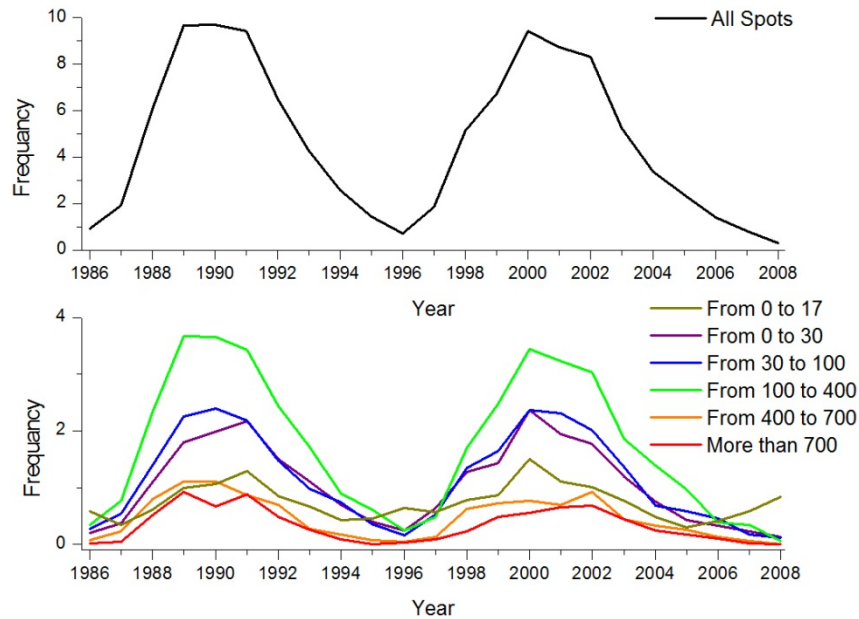
Groups of different areas give different contributions to the W-index.



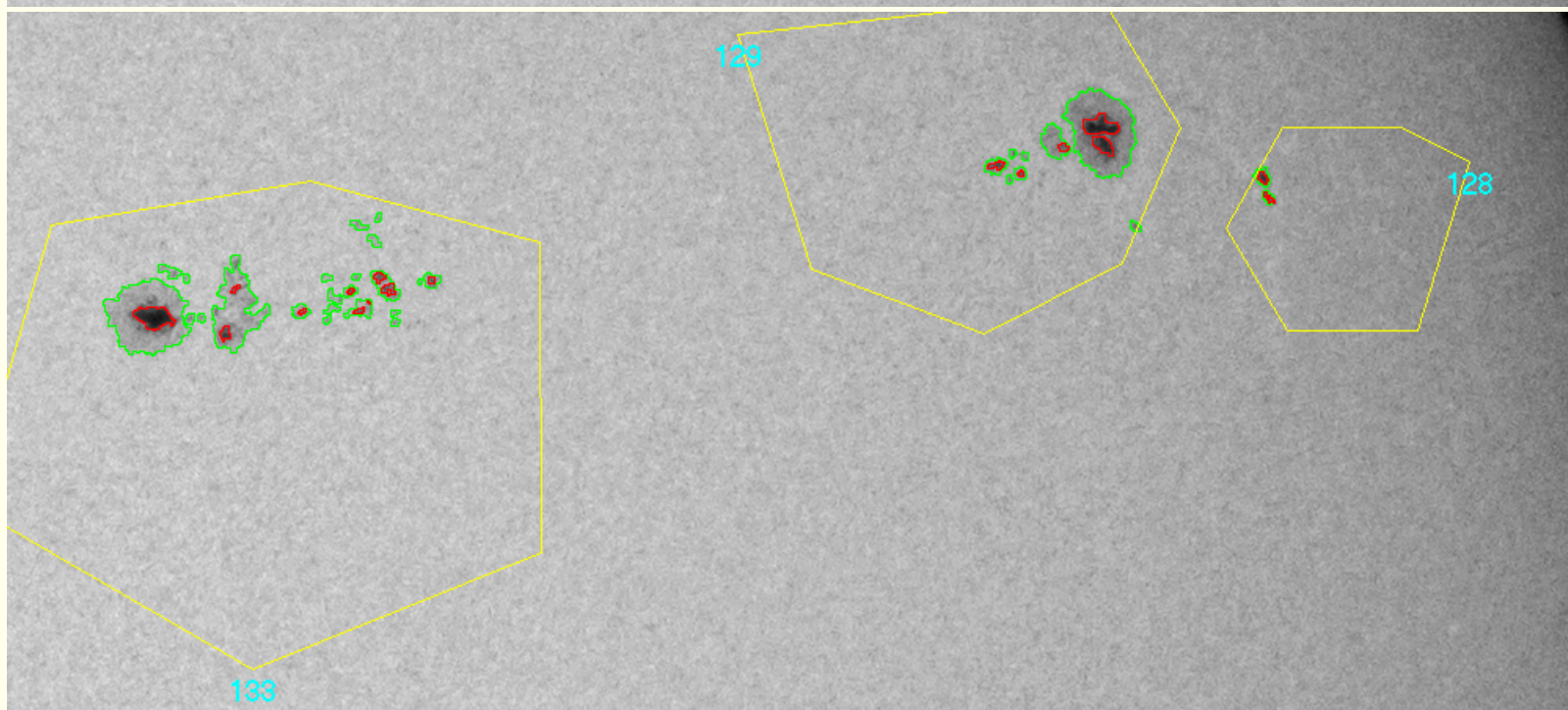
Total proportion of small sunspots in the W-index is high, but their behavior is the amplitude of opposite cycle of activity.



The relative proportion of the number of sunspot groups varies depending on the amplitude of the activity cycle.



21/05/
2012



Conclusions.

Sunspots data of Kislovodsk available since 1954.

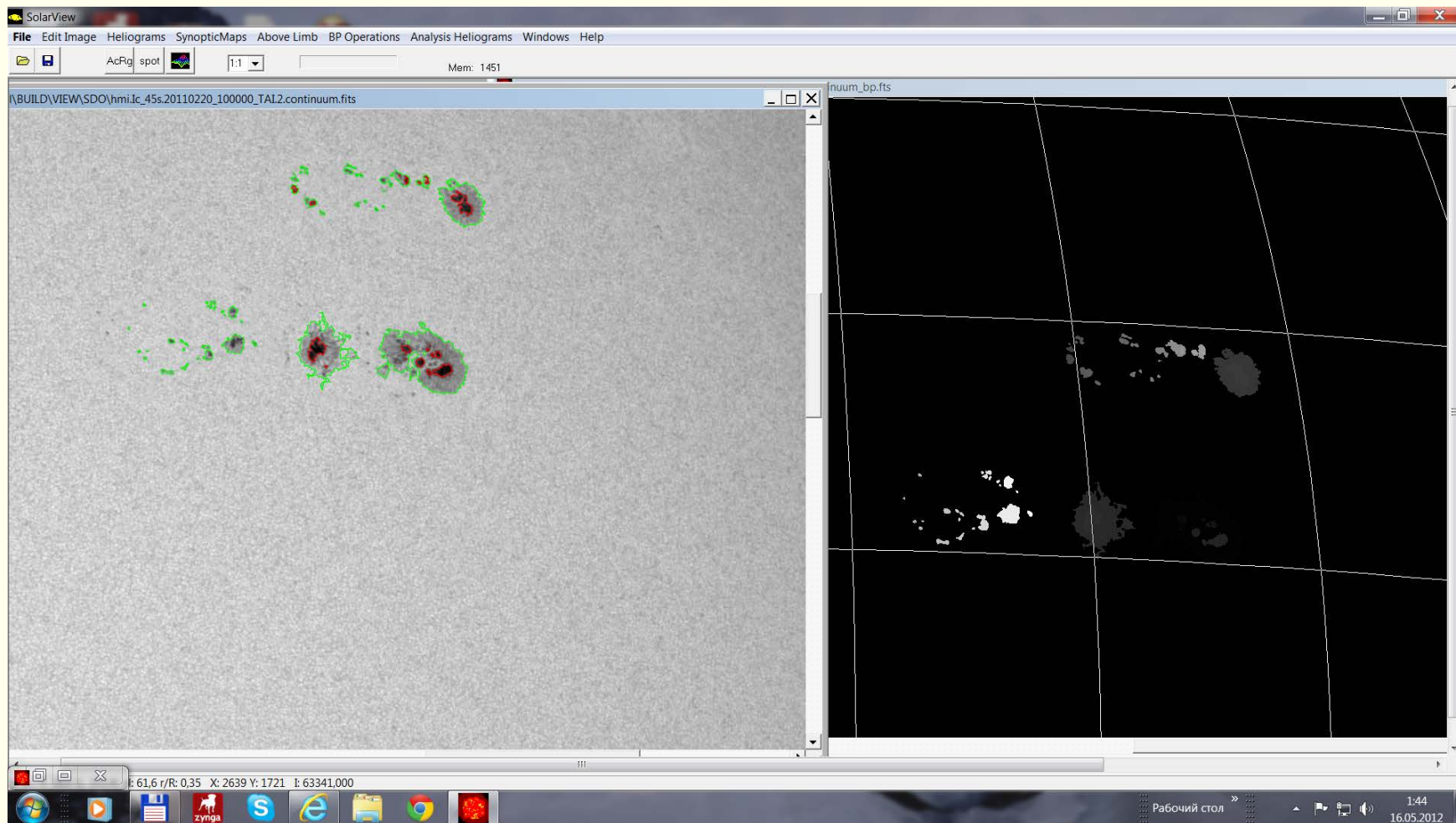
This is number of indices of solar activity:

- Daily coordinates and area of sunspot groups.
- The number of spots and sunspots umbra in the group
- The area of largest spot in the group.
- Wolf number

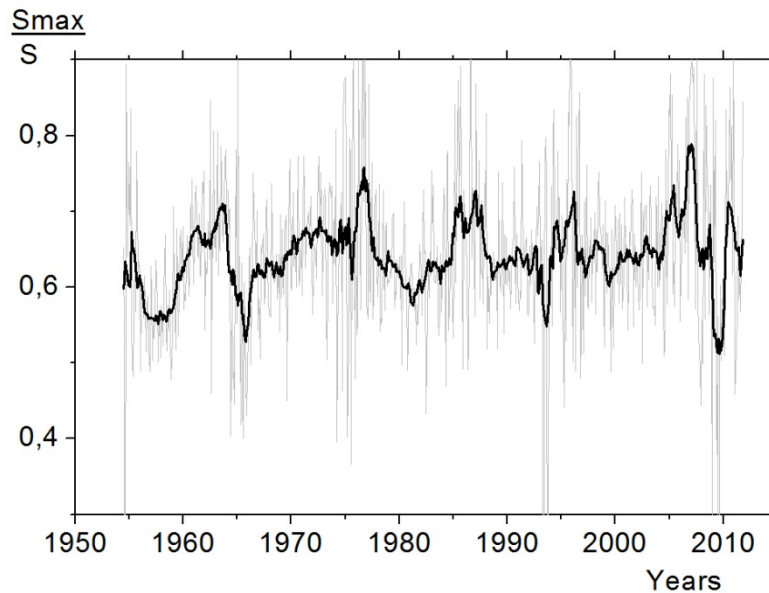
The contribution of sunspots of different sizes in the W-index varies depending on the amplitude of the activity cycle.

The number of small sunspot cycle amplitude decreases with activity.

Large number of sunspots increases with the amplitude of the activity cycle.



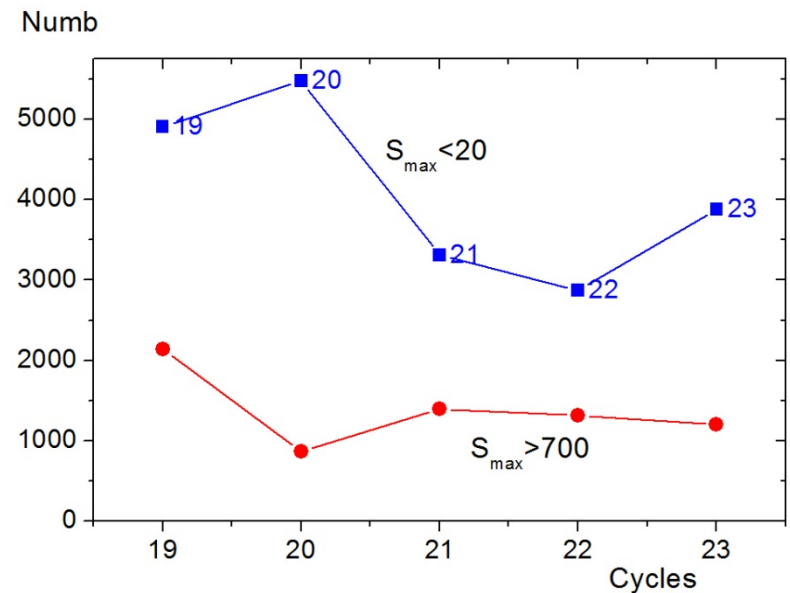
The area of greatest sunspot in the group



The ratio of the greatest sunspots to the total area

The number of spots with a small area in the 23rd cycle of increased.

The number of spots with a large area in the 23rd cycle, almost unchanged



Data exchange for synoptic observatories

1. Most accurate position for the selected objects. Possibility calculate all the geometrical parameters. Transferring from one image to another.
2. There may be several objects in the image including the superposition (sunspot, umbra, plage..).
3. Small file size exchange.
4. Use on multiple platforms with standard software.

(compress fit ?)

