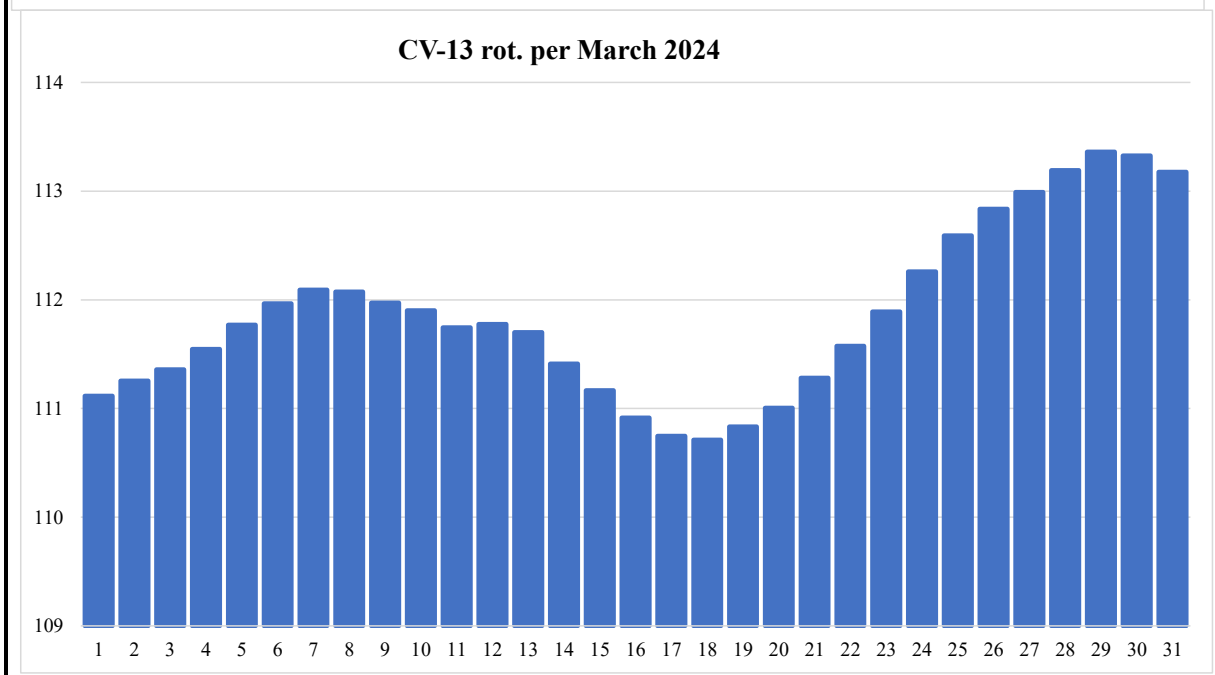
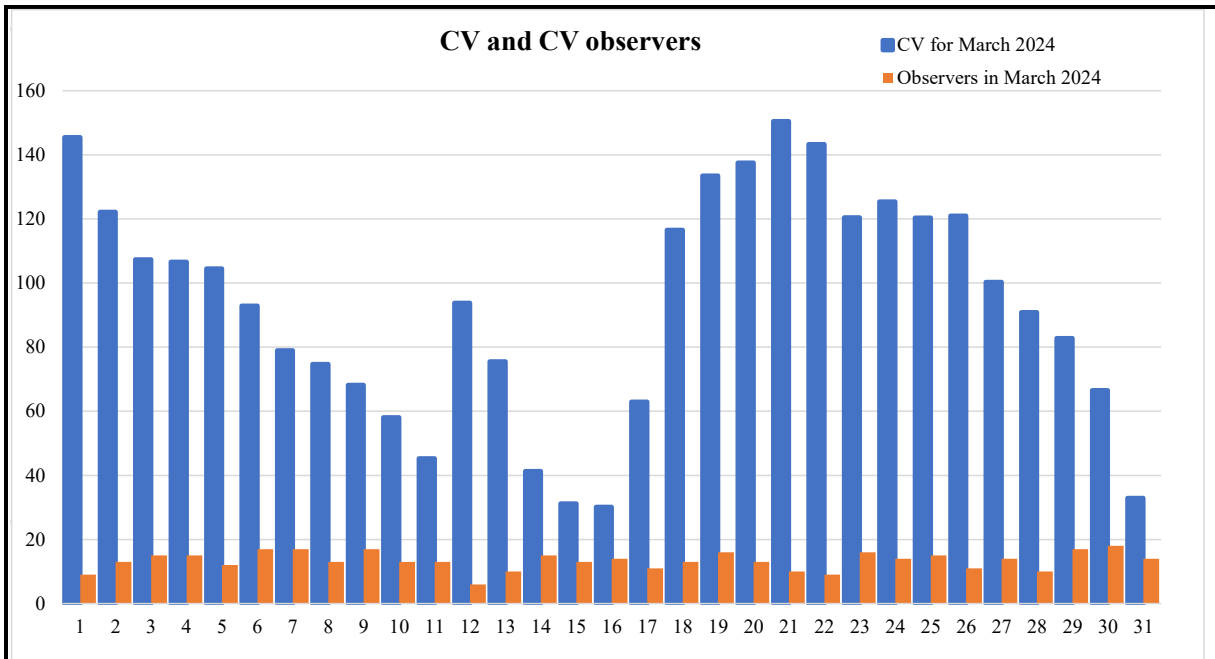


Month Results for March 2024						
Date	CV	Obsrvrs	Regions 6 rot.	CV-USAF 6-rot.	CV-6 rot.	CV-13 rot.
1	145,44	9	7,21	98,73	104,82	111,11
2	122,15	13	7,18	98,35	104,47	111,26
3	107,38	15	7,16	97,66	103,96	111,36
4	106,63	15	7,14	97,31	103,48	111,55
5	104,50	12	7,13	96,90	102,92	111,77
6	92,88	17	7,12	96,62	102,34	111,97
7	79,00	17	7,10	96,23	101,78	112,09
8	74,71	13	7,07	95,80	101,48	112,07
9	68,17	17	7,06	95,51	101,18	111,97
10	58,08	13	7,05	95,15	100,77	111,90
11	45,31	13	7,05	95,02	100,45	111,75
12	93,83	6	7,04	94,88	100,45	111,78
13	75,50	10	7,04	94,60	100,12	111,70
14	41,33	15	7,02	94,18	99,57	111,41
15	31,23	13	6,99	93,65	99,00	111,17
16	30,14	14	6,98	93,09	98,50	110,92
17	62,92	11	6,95	92,85	98,38	110,75
18	116,57	13	6,94	93,07	98,52	110,71
19	133,47	16	6,93	93,27	98,90	110,83
20	137,57	13	6,91	93,55	99,23	111,01
21	150,50	10	6,92	94,05	99,51	111,28
22	143,33	9	6,93	94,27	99,74	111,57
23	120,44	16	6,91	93,96	99,74	111,89
24	125,40	14	6,90	94,27	99,89	112,26
25	120,38	15	6,91	94,66	100,09	112,59
26	121,00	11	6,92	94,97	100,33	112,84
27	100,29	14	6,92	95,43	100,55	112,99
28	90,91	10	6,91	95,72	100,85	113,19
29	82,83	17	6,91	96,10	101,11	113,36
30	66,58	18	6,92	96,37	101,25	113,33
31	32,93	14	6,93	96,43	101,10	113,18
Totals/ Avrgs	92,95	13,3	7,01	95,25	100,79	111,86



Product: Weekly Highlights and Forecasts

Highlights of Solar and Geomagnetic Activity
08 - 14 April 2024

Solar activity reached high levels on 11 Apr due to an M5.4 flare at 11/1706 UTC from Region 3637 (S12, L=231, class/area=Cso/40 on 14 Apr); the largest event of the period. Moderate levels of solar activity were observed on 13-14 Apr due to an M2.4 flare at 13/0502 UTC and an M4.3 flare at 14/0232 UTC from Region 3637. The remainder of the period saw low levels of solar activity with C-class flares observed. Two CMEs, associated with filament eruptions near N20E02 at 11/0600 UTC and S16W14 at 12/0020 UTC, were anticipated to arrive on 14 Apr, but ultimately were not detected in the solar wind by the end of 14 Apr.

No proton events were observed at geosynchronous orbit.

The greater than 2 MeV electron flux at geosynchronous orbit was at normal to moderate levels throughout the week.

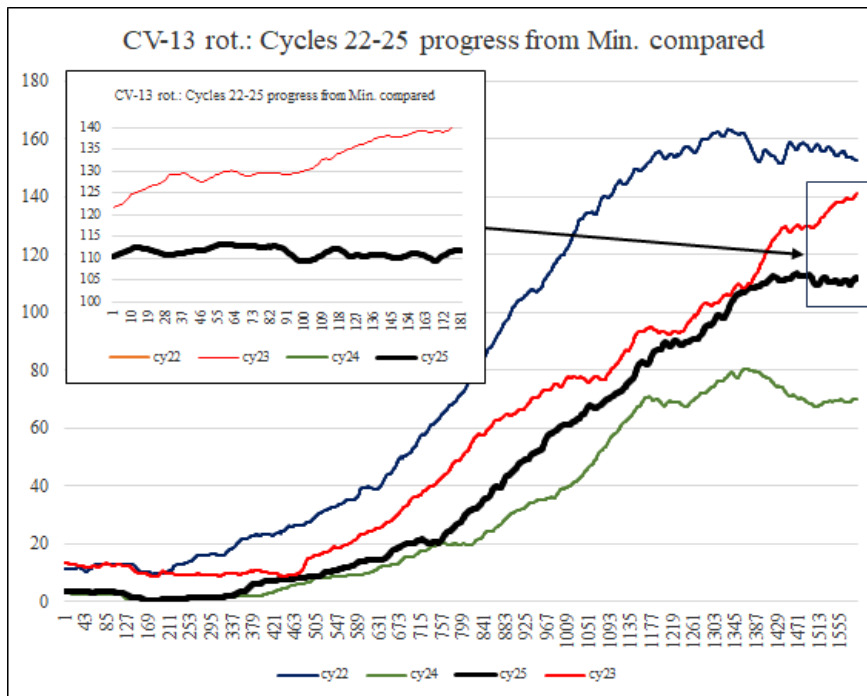
Solar activity is expected to be at low to moderate levels throughout the outlook period, with C-class flare activity expected and a varying chance for M-class flare activity.

No proton events are expected at geosynchronous orbit.

Click on link below to read the full weekly
<http://services.swpc.noaa.gov/text/weekly.txt>



Progress Solar Cycle no. 25



Graphic show CV-Int. levels cycle 25 compared to same stage cycles 21-24 per end Mar 2024.

It is still possible that the stage and rise of solar cycle 25 can be comparable to solar cycle 23 (1996-2008), though chances seem worse now. Read the latest predictions in this issue.

Solar cycle 25 has now long gone surpassed solar cycle 24 (2008-2019) at the same stage of development.

Further updates in the following issues of MPR.

Highlights March 2024

The solar activity in March 2024 is moving slowly and nice flare activity, a few large groups. The large group 3615 was very complex and became the 5th "SuperSunspotGroup" (>1000 mvh) in solar cycle 25. Remember that Earth would only fill about 84 mvh on the solar disk - equivalent to a small Hsx-spot!

The 6 rot. average was 103,0 CV-units by end March, a down from February, but the 13 rot. average was 111,7 CV-units by last month end, slightly up from last month.

A total of 882 regions this cycle per end April 2024 (440 regions North and 442 regions South). At the same time solar cycle 24 produced 674 regions (287 north and 387 south)

Latest prediction indicate maximum in August 2025. See article on page 6 this issue. We see a fairly flat maximum where spring and summer 2025 may have max.-activity. Updates will come.

We reckon there have passed 1603 days of the new cycle by this issue on 15 Apr 2024.

There is a continuous production of smaller regions but soon hope for more active periods! The appearance of region 3615 and heavy flare activity showed some very active periods to come!

Solar Flux onset occurred 30 September 2022.

Please remember you are always welcome to contribute with drawings and photos!

Need for new members! Do you know any amateur solar astronomer that know or like to learn classifications? Then please pass the information about CV-Helios Network's work and contact cvhelios@gmail.com

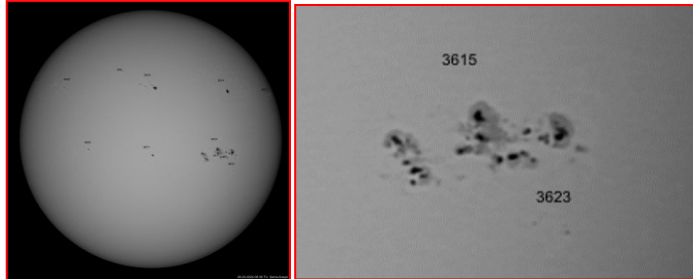
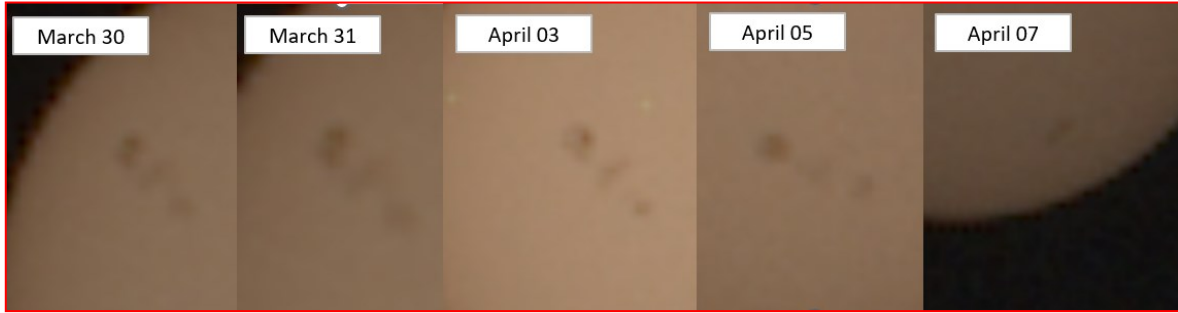
Supergroups-catalogue:

CV-Helios Network is currently working on a catalogue with drawings or photos of the, currently 860 sunspot regions that exceeded 1000 mvh in the period of RGO-USAF tables, that is, from 1874 to the current year. Drawings or photos will be collected from the archives of wellknown different observatories! Hopefully this catalogue will be published in 2025! Stay tuned!

Pictures from last month - Observer contributions, etc.

Photo courtesy: <https://mars.nasa.gov/mars2020/multimedia/raw-images/>

Highlights March 2024



Above:
Photomontage from Mars Perseverance from 2024, Mar 30th to April 07 showing AR 3615.

Below:
Photo by CV-135 Gema Araujo, Spain, from March 26, when AR 3615 was at its largest, 1450 mvh. Click on image to see a larger one.

All members are welcome to sending in their photos!

Awards this month

0

none



New members:

Welcome to:

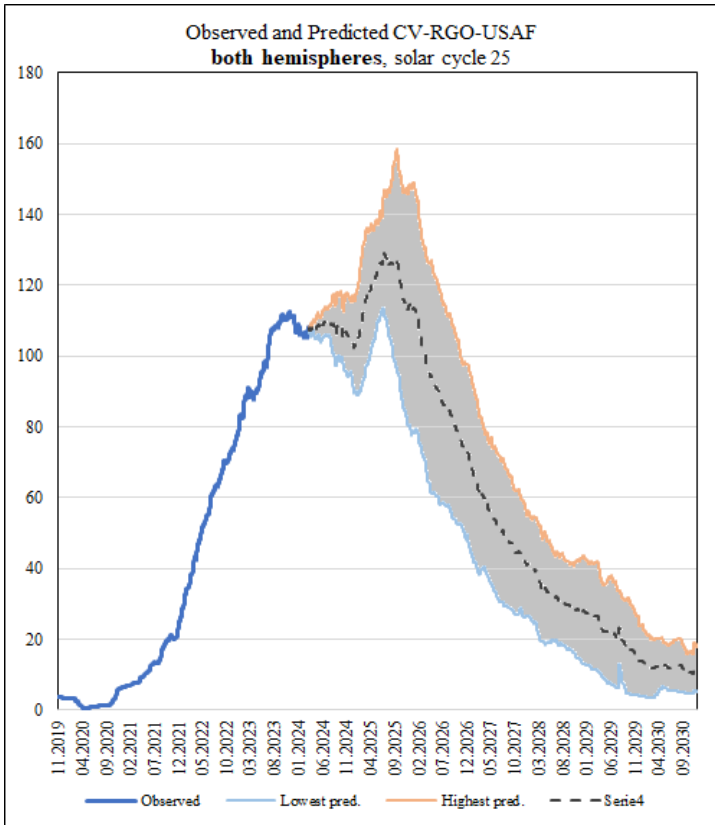
We are now 52 active members (last 12 mo.)

Sunspot regions of March 2024

Region,First date,days,Lat.,Long.,Rot.,Max class,Max CV
3595,25.02.24,11,-20,165,2281,EKO,44
3598,29.02.24,6,-13,177,2281,DAI,22
3599,01.03.24,15,-13,67,2281,DAO,19
3600,02.03.24,12,-18,57,2281,HSX,10
3601,03.03.24,2,14,127,2281,BXO,2
3602,04.03.24,9,17,77,2281,CSO,11
3603,04.03.24,6,14,52,2281,CSO,11
3604,05.03.24,6,8,21,2281,HAX,7
3605,07.03.24,8,-15,41,2281,CRO,5
3606,12.03.24,4,9,331,2282,DAO,19
3607,12.03.24,11,-18,315,2282,DSO,25
3608,13.03.24,8,11,305,2282,DRO,13
3609,13.03.24,2,7,297,2282,AXX,1
3610,13.03.24,3,-16,278,2282,HRX,4

Region,First date,days,Lat.,Long.,Rot.,Max class,Max CV
3611,14.03.24,6,28,272,2282,HSX,10
3612,15.03.24,3,23,15,2281,AXX,1
3613,16.03.24,6,-23,324,2282,DAI,22
3614,17.03.24,13,17,223,2282,DSO,25
3615,18.03.24,13,-13,216,2282,FKC,57
3616,18.03.24,5,2,313,2282,DAI,22
3617,20.03.24,12,-14,185,2282,CAO,8
3618,21.03.24,3,-19,304,2282,CAO,8
3619,21.03.24,12,18,185,2282,CSO,11
3620,22.03.24,7,-9,155,2282,CRO,5
3621,23.03.24,5,16,254,2282,CSO,11
3622,24.03.24,3,19,141,2282,DAO,19
3623,25.03.24,2,-19,222,2282,BXO,2
3624,30.03.24,4,16,72,2282,BXO,2

Progress and Predictions for Solar Cycle 25



Progress and Predictions for Solar Cycle 25

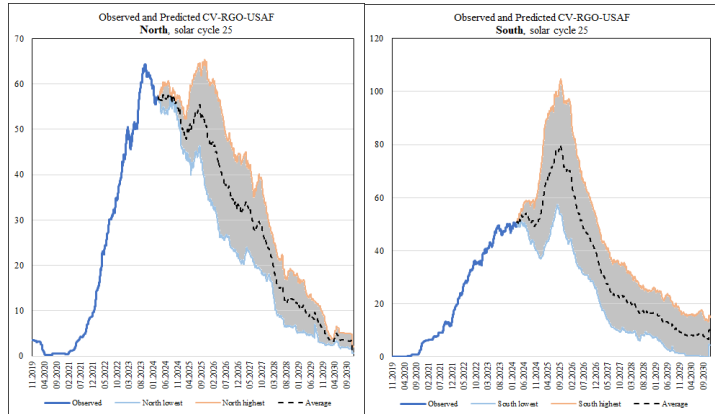
Presented on these graphs are the observed data and the predicted data based on CV-RGO-USAF from the same source comprising solar cycles 22 to 24 up to day number 1590, equivalent to 30 March 2024 for solar cycle 25, thereafter calculations based on the former for the remains of solar cycle 25.

It now seems that we have already passed the maximum for the northern hemisphere and which occurred around the **17 October 2023!** It is not unusual that the maximum for each hemisphere are separated by a long time, but in this case it is about 1,8 years!

From the calculations here the result is a maximum predicted around **09 August 2025**, almost at the same time as the southern hemisphere reaches its maximum (prediction is 12 Aug 2025).

The CVmaximum from this source lands at around 116,6. The total magnification for the separated hemispheres show a 48/52 percent relation between north and south.

Should these predictions should fall in nearly true, we may face a fairly active summertime, the falling activity the remains of 2024 and towards February 2025, when the maximum final effort will set in.



The predicted 13-rot. averages for CV:

PREDICTIONS LOW - HIGH SCENARIOS

Mo.	2024	2025
01	-	90,6 - 116,6
02	-	89,8 - 122,1
03	-	93,6 - 131,6
04	106,6 - 109,0	98,9 - 136,0
05	105,4 - 110,7	103,9 - 136,7
06	104,9 - 111,5	109,7 - 138,8
07	105,7 - 113,3	112,4 - 143,2
08	104,3 - 114,6	107,8 - 146,4
09	99,1 - 116,3	101,1 - 151,8
10	99,4 - 117,6	95,6 - 155,5
11	96,3 - 115,8	87,4 - 148,4
12	94,8 - 116,7	81,9 - 146,9

For larger views all three graphs are linked

The grey areas presented on these graphs indicate the minimum and maximum levels of predicted CV for the remains of solar cycle 25. Predicted minimum for solar cycle 25 is currently estimated at December 2030.

Discovering activities in solar cycles from 1610 to 2023 (continued)

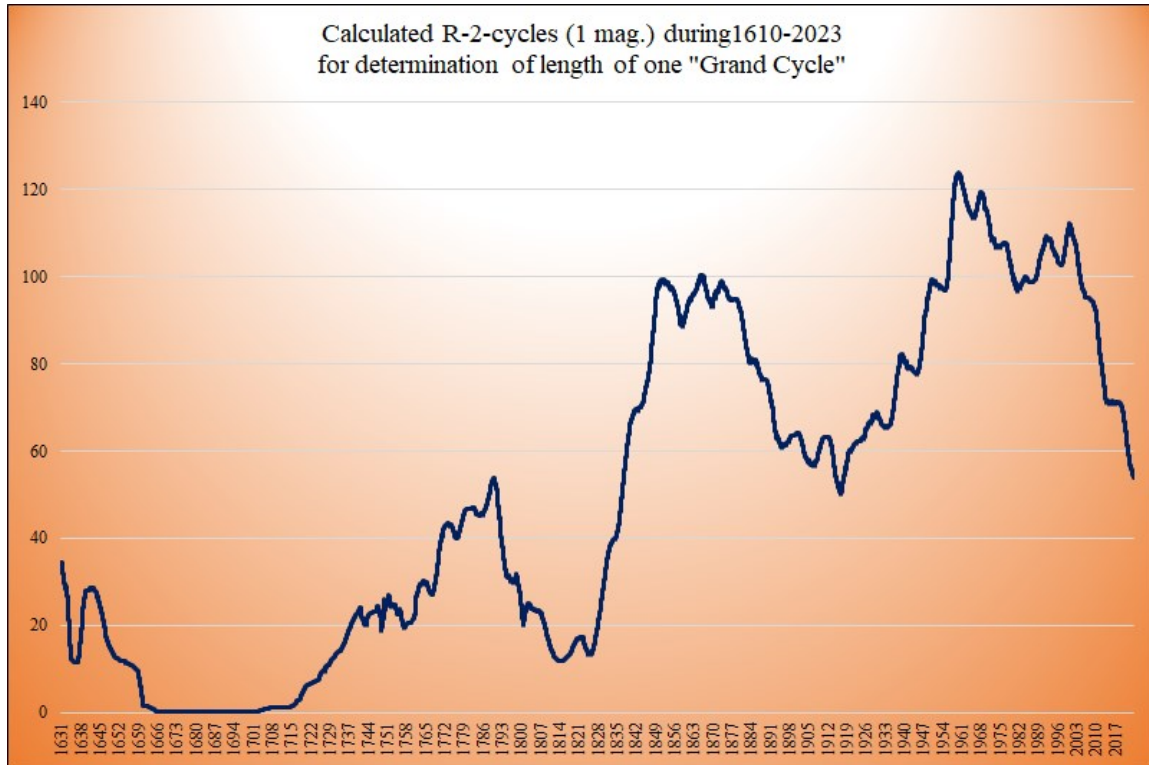
THE "GRAND SOLAR CYCLE", 108 YEARS LONG?

Below is a graphic illustration of the finds that were made going through and creating a 2-cycle centered daily relative number average for the solar cycles in the period from 1610 until end 2023.

It seems here we have, apart from the unclear Maunder-minimum, quite clear maxima and minima of the following solar cycles. Let us call them Grand Cycles 1, 2 and 3.

The 2-cycle minimum of the current, Grand Cycle 3, have not yet occurred, but will show within few years.

The Maunder-minimum is estimated to have occurred 30 June 1678, best estimate on 13-rot. avrgrs.



MIN2CY		MIN2CY-ctrd	
16.06.1700		17.07.1689	
28.09.1814	114,28	19.10.1803	114,26
26.12.1916	102,24	18.01.1906	102,25
Average length years	108,26	Average length years	108,25

GRAND AVERAGE 2-CYCLE R-NOS. MIN. TO MIN. 108,26 YEARS

The above conclusions may be subject to discussions in here, which I invite you all to participate in. As mentioned in the article MPR 511 we may have a "Grander" cycle that could stretch up to 2300 years long.

Solar Coordinates

Daily list of Solar Ephemeris available at:

[Daily list of Solar Ephemeris and SDO on grid](#)

Here you can see Today's Po, Bo, Lo, Rotation no., RA and Dec. and adjusted SOHO-picture on grid.

Calculating CV

For your convenience and security, use the mif2021,

NEW form (beta) for classifications released!

<https://www.cv-helios.net/mif2021.xlsx>

the Monthly Input Form, which you can use for all of your next reportings!

Monitor MPR daily progress

CV-Helios Network: Monitor MPR progress as entries are made!

Monitor your submissions as they are registered:

<https://cv-helios.net/helios/cv/web/mprpost.html>

The data are available fresh from about 10:00 UTC until local midnight.

Content comprises CV-Report for latest month, CV-Report for latest month

individual results, Extracts from NOAA on forecasts/discussion,

Extracts from NOAA warehouse on SRS and other activity,

Last 24 months CV-data, This month CV acc. to USAF

Registration data

Check if your CV-observations have been registered (please allow up to 24 hrs):

<https://www.cv-helios.net/helios/cv/web/datlist.htm>

for checking of Entries Summary

<https://www.cv-helios.net/helios/cv/web/cvobsmonth.htm>

CONTRIBUTE WITH YOUR PHOTOS AND OTHER OF INTEREST!

We would like YOU to contribute with drawings or photos from last month

Also any other contribution that may have an interest for our observers.

Please send by email to:

cvhelios@gmail.com

Please check out www.cv-helios.net/cvrep2.html for updates of files!**SUBMISSIONS OF CV-OBSERVATIONS**

Log on to:

<https://www.cv-helios.net/observations/index.html>

0

login

solaris

password

cvheliosobs

0

Submission before 15th of proceeding month 18:00 UTC.

(password: cvhelios)

MPR issue 15th of proceeding month 2000 UTC. Good luck CV-observing!

**Average received to registered time: 0 day 21 hours 12 minutes
and average macrotime for one registration is 12,98 seconds**

CV-Helios Network

- over 42 years in solar amateur astronomy service!

There are now 13252 registrations made, containing 213231 CV-observations!
Last 12 months 5693 CV-observations from 38 observers originating from 17 countries

Editorial close: 15.04.2024 13:36 UTC



CV-Helios Network