RIPRESE PLANETARIE IN ALTA RISOLUZIONE
VENERE – EMISSIONE TERMICA

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Astro **UAN** Meeting Capodimonte 21 Ottobre 2017

ARGOMENTI

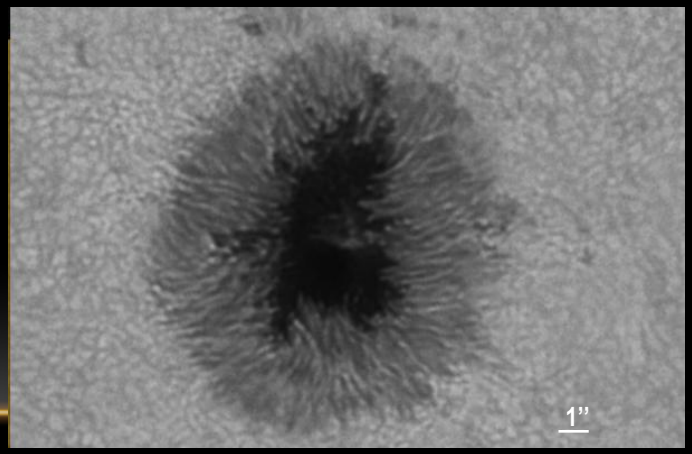
- Imaging Alta Risoluzione – Metodo Scientifico
- Monitoraggi Atmosfere e Superfici Planetarie – Risultati Ottenibili
- Seeing
- Ottimizzazione del Setup di Ripresa
- Riprese Planetarie Hires
- Venere - Emissione Termica

Alta Risoluzione – Metodo Scientifico

I corpi del sistema solare sono soggetti estremamente piccoli. Le riprese degli oggetti del sistema solare sono definite in alta risoluzione a sottolineare che il punto chiave è importante riuscire ad ottenere la massima risoluzione.

Ricercare del più piccolo dettaglio ottimizzando il proprio setup di ripresa!!

Ripetibilità e compatibilità dei dati acquisiti!!!!



MONITORAGGI ATMOSFERE E SUPERFICI PLANETARIE – RISULTATI OTTENIBILI

La risoluzione delle superfici e atmosfere planetarie è dell'ordine di qualche centinaio di chilometri, perfetta per studiare la dinamica dei corpi celesti nel lungo periodo.

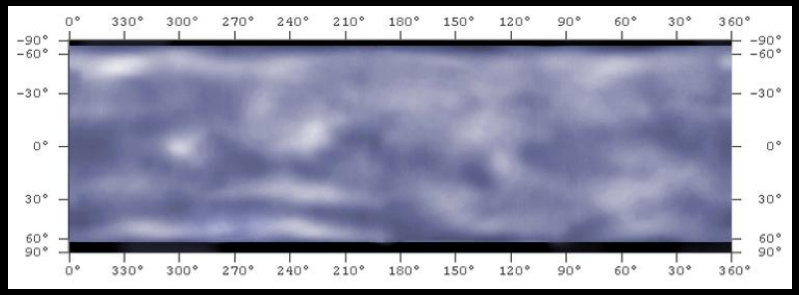
La comunità astronomica è alla ricerca di dati che possono essere utili per comprendere fenomeni non ancora ben compresi.

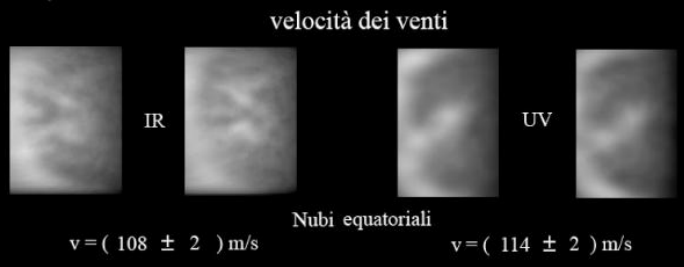
Monitoraggio pianeti: Venere, Marte, Giove, Saturno…

Come varia la circolazione atmosferica del pianeta?

Come si evolvono i sistemi nuvolosi?

È possibile assistere a cicloni simili a quelli della terra?





STRUMENTAZIONE

C11 XLT

Camera ASI 174-178 Mono

EFW2 Atik

Barlow Zeiss Abbe

Filter Set: RGB, R+IR, IR 685nm, Methan, UV, ecc

TURBOLENZA - SEEING

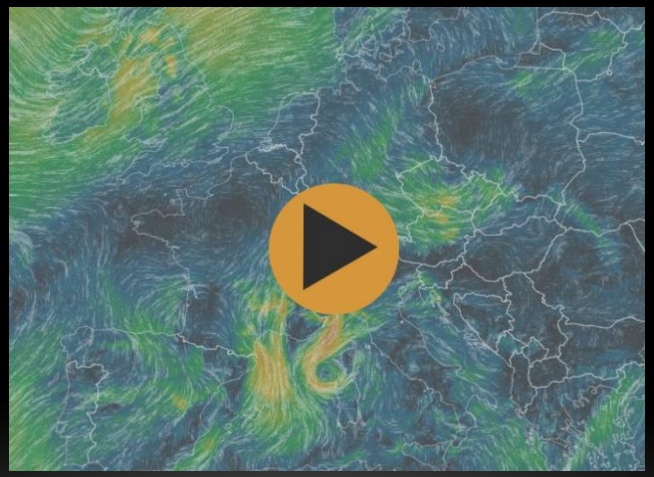
Nel gergo astronomico la parola seeing sta ad indicare la turbolenza, l'agitazione dell'immagine di una stella vista al telescopio.

L'atmosfera terrestre non è completamente trasparente e stabile, così come gli astronomi vorrebbero che fosse; correnti di aria calda e fredda mescolandosi e circolando insieme causano la turbolenza atmosferica.

La turbolenza può essere di origine locale e di origine atmosferica

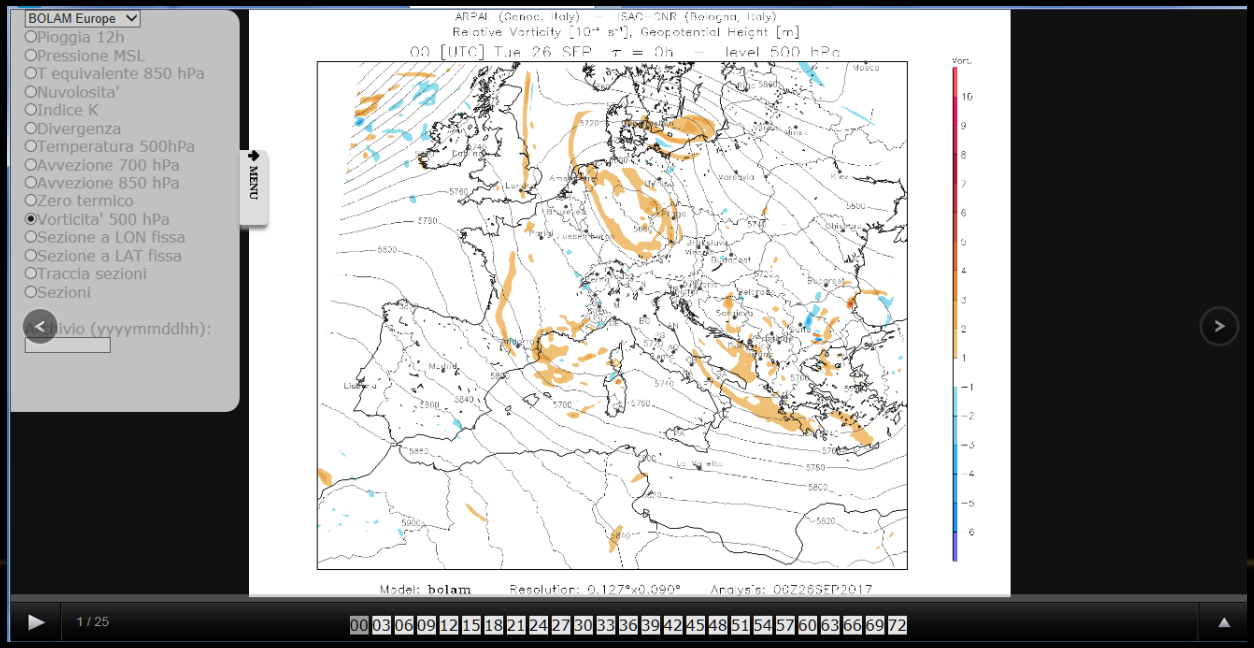
METEOBLUE

Hour (CEST)	Clouds Low	Mid	High	Seeing arc sec.	Index 1	Index 2	Jet stream	Bad Layers Bot (km)	Top (km)	K/100m
Mon 2017-09-25										
14	61	0	0	0.85	5	5	36 m/s	06.5	07.3	0.5 K
15	59	0	0	0.85	5	5	36 m/s	06.5	07.3	0.5 K
16	42	0	0	0.85	5	5	35 m/s	06.5	07.3	0.6 K
17	42	0	0	0.84	5	4	36 m/s	05.7	07.3	0.6 K
18	42	0	0	0.85	5	4	34 m/s	05.7	07.3	0.6 K
19	49	0	0	0.88	5	5	32 m/s	05.7	06.5	0.6 K
20	50	0	0	0.93	5	5	30 m/s	05.7	06.5	0.6 K
21	46	0	2	0.96	5	5	28 m/s	04.3	05.0	0.5 K
22	44	0	0	1.03	5	5	25 m/s	04.3	05.0	0.5 K
23	42	0	0	1.17	5	4	23 m/s	03.1	05.0	0.5 K
Tue 2017-09-26										
0	31	0	0	1.23	5	3	22 m/s	02.5	05.0	0.5 K
1	31	0	0	1.24	5	3	20 m/s	02.5	05.0	0.6 K
2	42	0	0	1.22	5	4	18 m/s	03.7	05.0	0.5 K
3	42	0	0	1.25	5	4	17 m/s	03.7	05.0	0.5 K
4	1	0	3	1.27	5	4	16 m/s	03.7	05.0	0.5 K
5	40	0	0	1.26	5	4	15 m/s	03.7	05.0	0.5 K



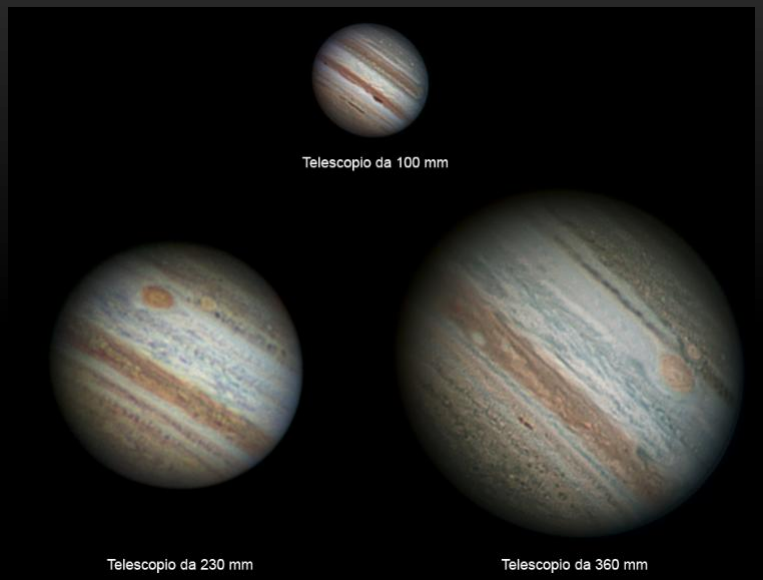
WUNDERGROUND

ARPAL

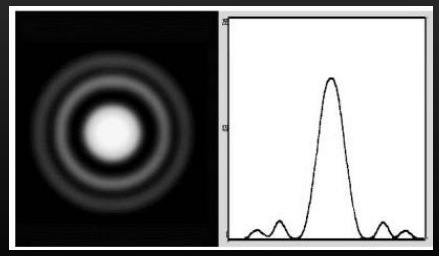


OTTIMIZZAZIONE SETUP

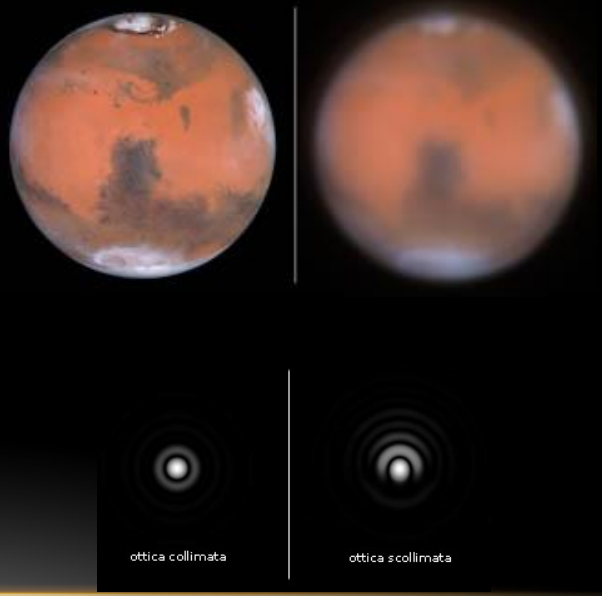
DIAMETRO



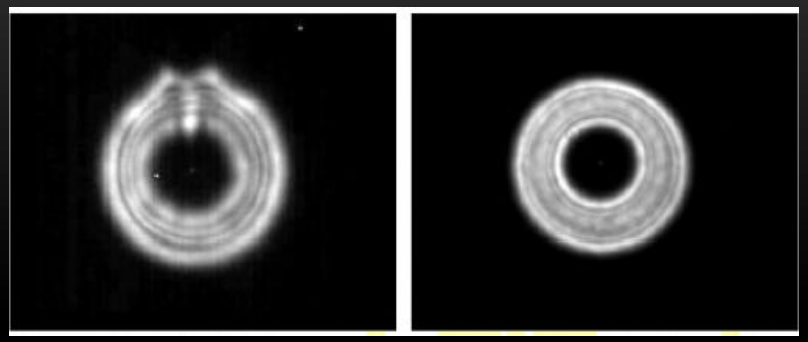
DIFFRACTION LIMITED



COLLIMAZIONE!!!!



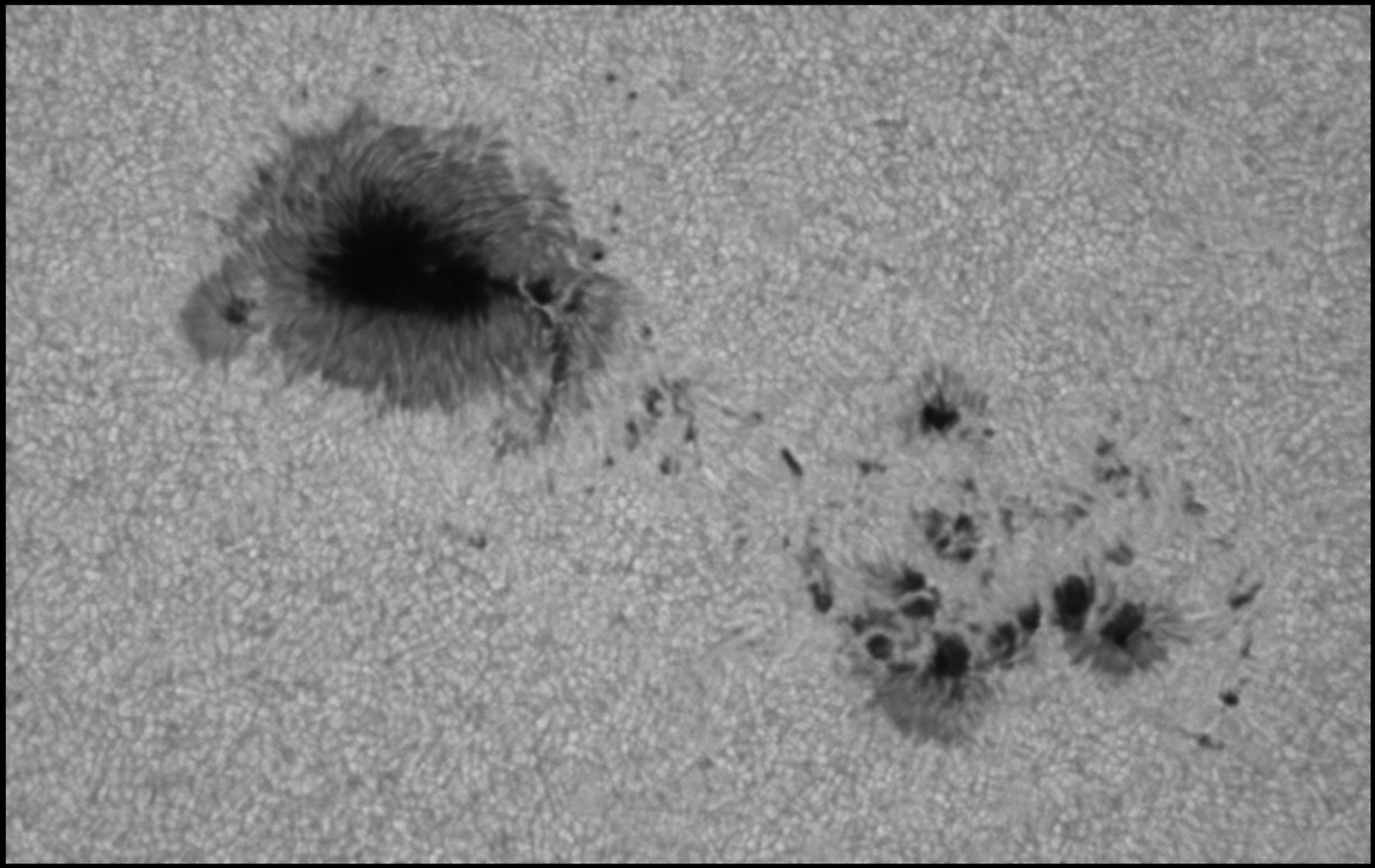
ACCLIMATAMENTO OTTICHE



FOCUS

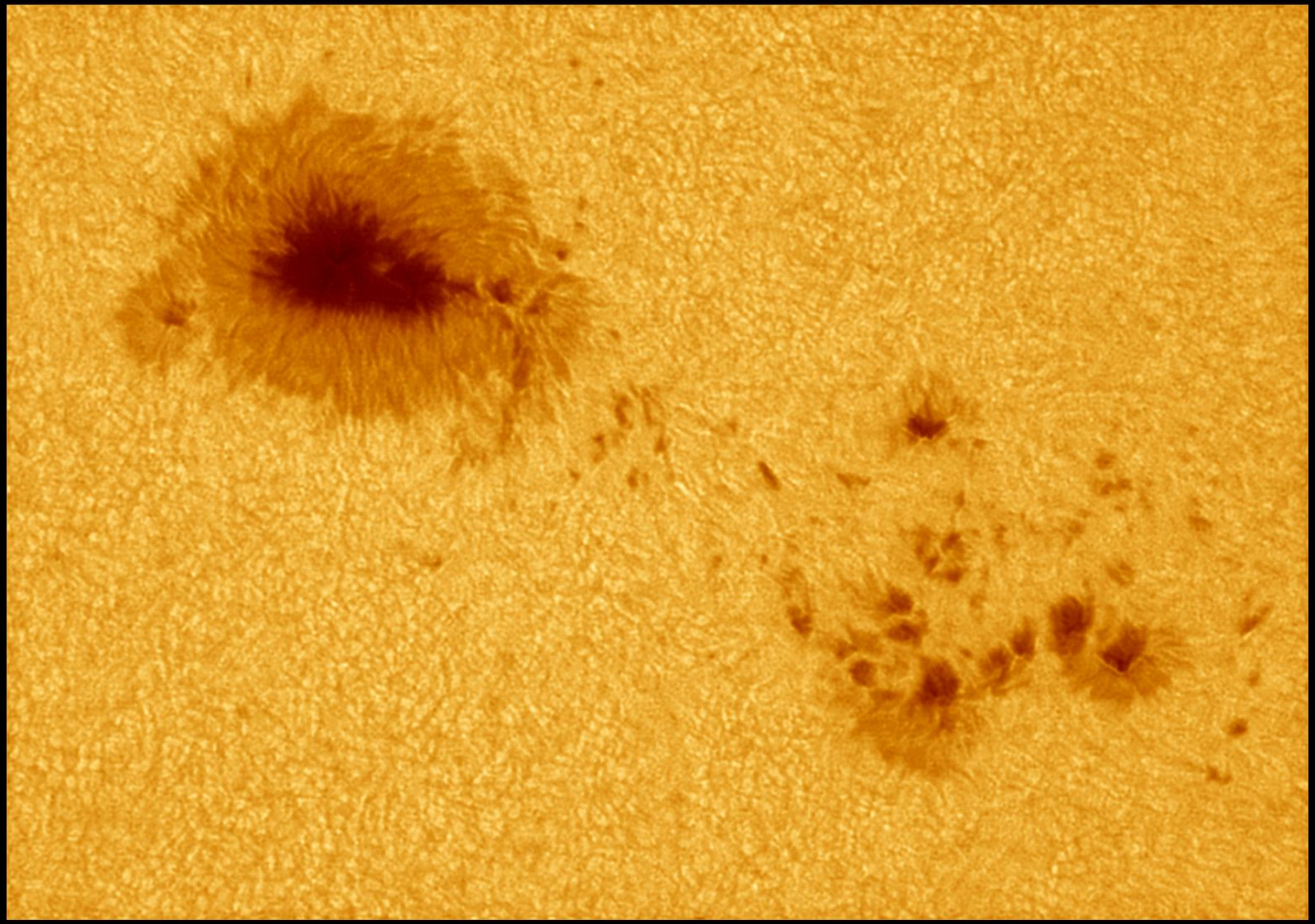
RIPRESE PLANETARIE HIRES (HIGH RESOLUTION)

Sunspot NOAA 2665



SCT C11 XLT 280mm AZNEQ6 Pro - Camera ZWO ASI 174M - 2017-07-11 (yyyy-mm-dd) 10:45 UT
Astrosolar ND 5.0 and Baader Continum Filter - Barlow Zeiss Abbe - 0,15"/pixel
Seeing 5-6/10, Transp.:8/10

Sunspot NOAA 2665



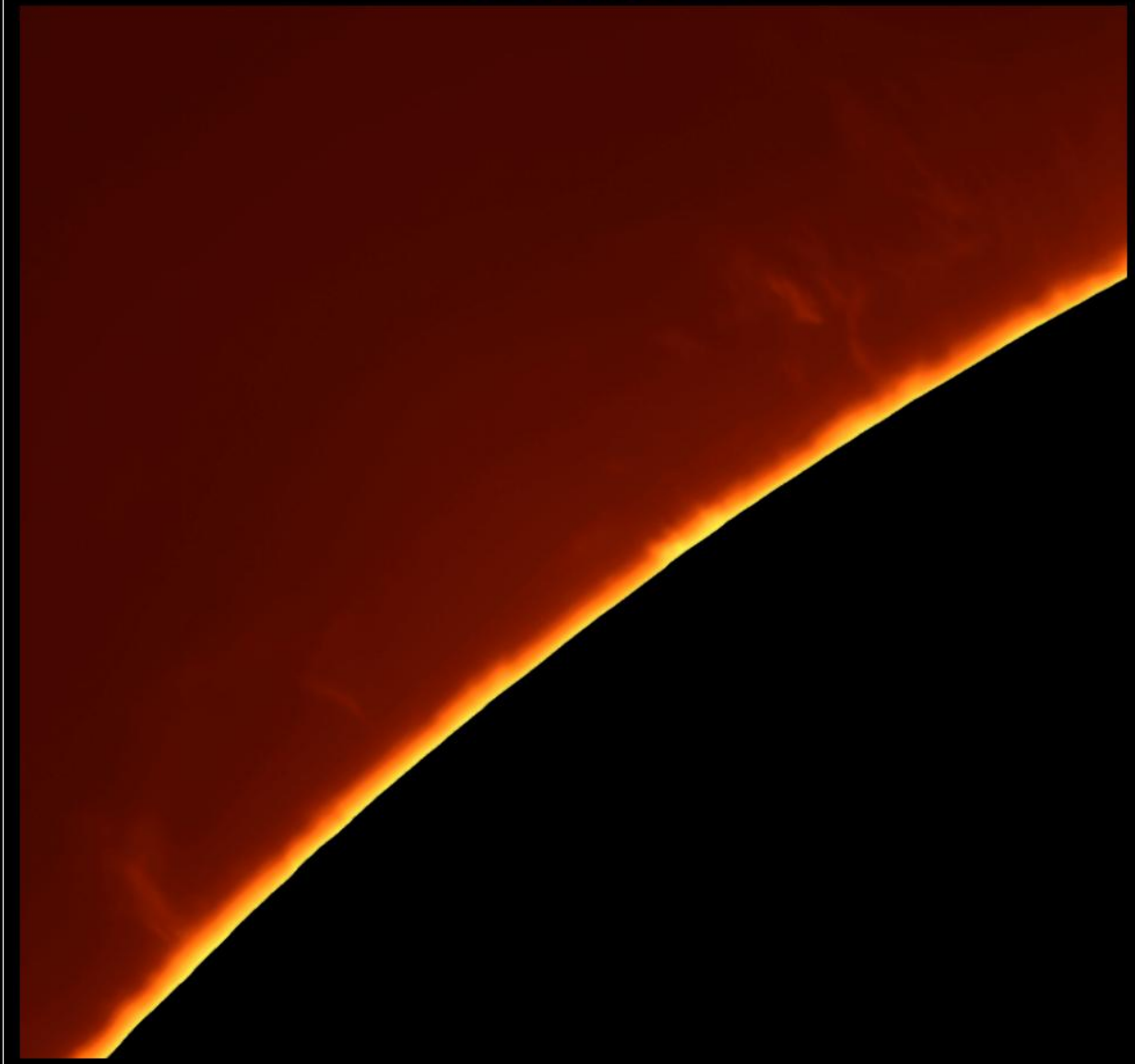
SCT C11 XLT 280mm AZNEQ6 Pro - Camera ZWO ASI 174M - 2017-07-11 (yyyy-mm-dd) 10:43 UT
Astrosolar ND 5.0 and Baader Continum Filter - Barlow Zeiss Abbe - 0,15"/pixel
Seeing 5-6/10, Transp.:8/10

Sun H-alpha - Sunspot AR2670

Achromatic Refractor TS 152/900 - NEQ6 Pro - Camera ZWO ASI 178M
Daystar Cromosphere 0.6A - Telecentric Barlow 4.3X - Resolution: 0,12"/pixel
Seeing 6-7/10, Transp.:8/10

2017-08-08 (yyyy-mm-dd) 08:32 UT

Sun H-alpha - Prominenece

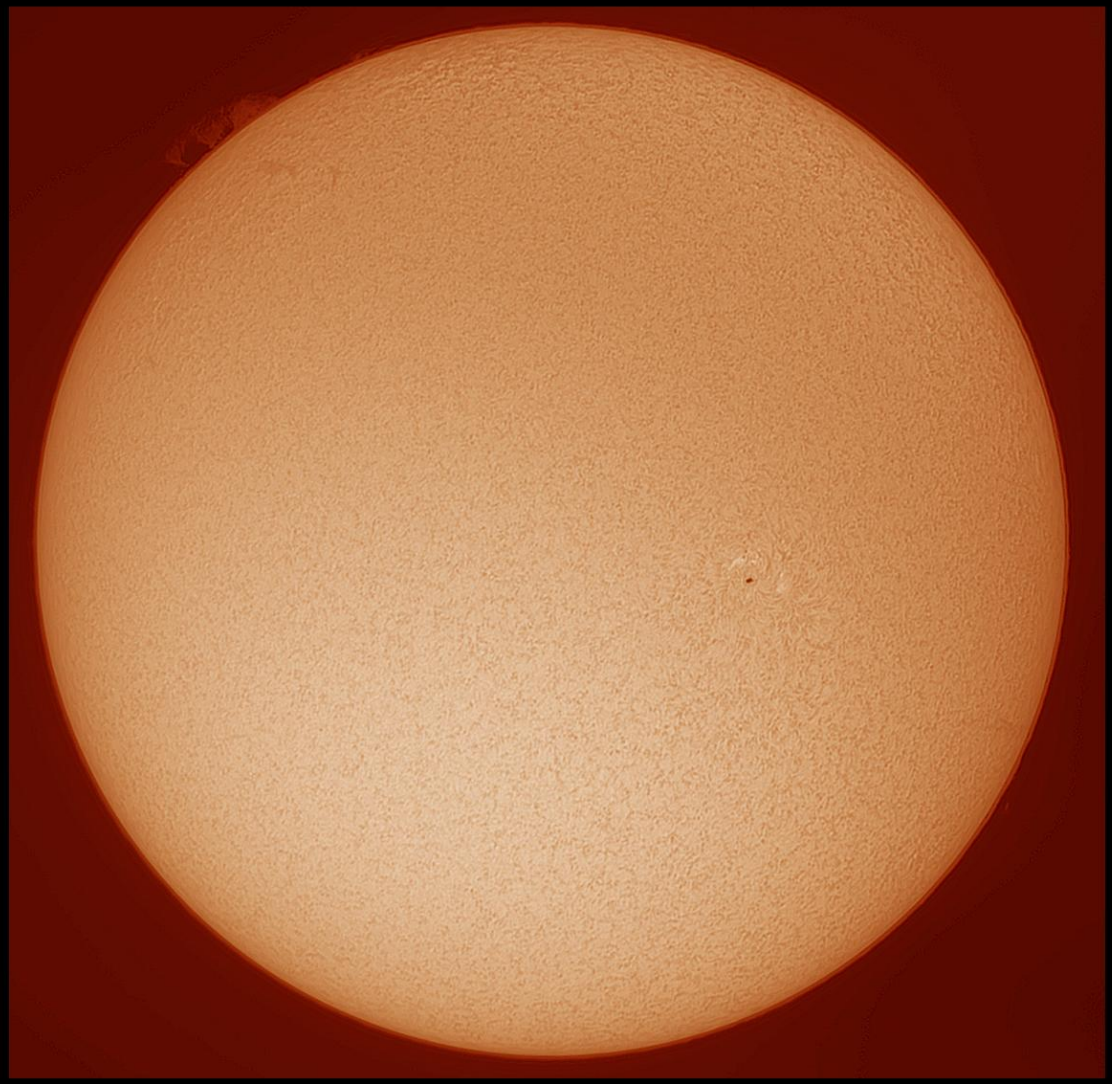


Achromatic Refractor TS 152/900 - NEQ6 Pro - Camera ZWO ASI 178M
Daystar Cromosphere 0.6A - Telecentric Barlow 4.3X - Resolution: 0,12"/pixel
Seeing 6-7/10, Transp.:8/10

2017-08-07 (yyyy-mm-dd) 08:44 UT

Site Agerola - Italy

Sun H-Alpha - Prominece Evolution



2017 June 25, 09:40 UT
Camera ASI 178M
Lunt50 BF600, EFL=350mm

10:12 UT
Barlow Celestron 2x X-CEL-LX APO

10:16 UT
Barlow Celestron 2x X-CEL-LX APO

10:18 UT
Barlow Celestron 2x X-CEL-LX APO

Seeing 6-7/10, Transp.: 8/10
Site Agerola (Italy)

Langrenus

2017-05-29 (yyyy-mm-dd) 18:59 UT Mid.
SCT C11 XLT 280mm AZNEQ6 Pro Camera ZWO ASI 178M - Barlow Zeiss Abbe - EFL=7000mm
Baader R+IR Filter 610nm
Seeing 7/10, Transp.:8/10

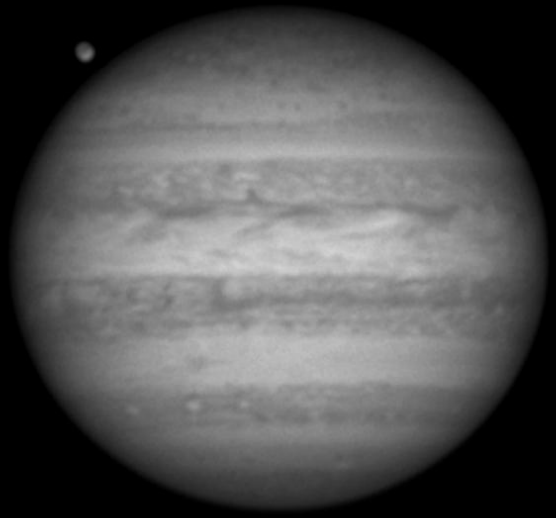
Jupiter

R G B

2017-05-31 (yyyy-mm-dd) 19:45.0 UT
CM I 155.6° CM II 202.8° CM III 336.2°
Eq. Diam = 40.5'' h. = 46°
Winjupos Derotation 8 minutes

SCT C11 XLT 280mm AZNEQ6 Pro - Camera ZWO ASI 178M - ZWO ADC
Baader 36mm RGB Filter - ATIK EFW2 - Barlow Zeiss Abbe - EFL=7000mm
Seeing 7/10, Transp.:8/10

Jupiter and Ganymede



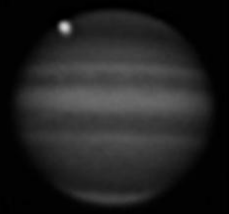
R+IR 610nm
2017-04-14 (yyyy-mm-dd) 21:42.2 UT
CM I 4° CM II 49.1° CM III 170.1°
Eq. Diam = 44.2" h. = 43°

R+IR 610nm
2017-04-14 (yyyy-mm-dd) 21:45.1 UT
CM I 5.7° CM II 50.8° CM III 171.9°
Eq. Diam = 44.2" h. = 43°

Ganymede Detail - Galileo Regio

R+IR 610nm
2017-04-14 (yyyy-mm-dd) 21:42.2 UT
CM 179°
Eq. Diam = 1.628"

R+IR 610nm
2017-04-14 (yyyy-mm-dd) 21:54.5 UT
CM I 11.5° CM II 56.5° CM III 177.5°
Eq. Diam = 44.2" h. = 43°

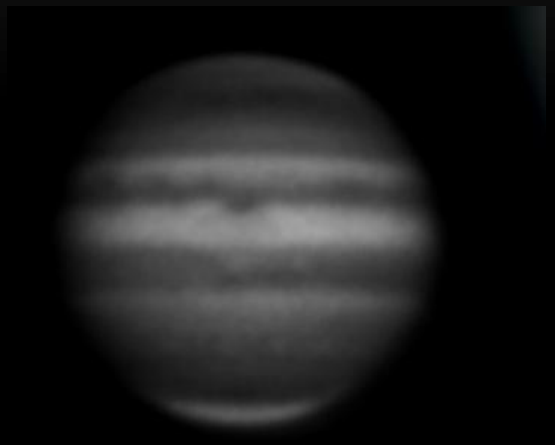


CH4
2017-04-14 (yyyy-mm-dd) 22:05.9 UT
CM I 18.4° CM II 63.4° CM III 184.4°
EFL = 3000mm

SCT C11 XLT 280mm AZ-NEQ6 Pro - Camera ZWO ASI 178M
ATIK EFW2 - Barlow Zeiss Abbe - EFL=7000mm
Seeing 6-7/10, Transp.:8/10

GIOVE NELLA BANDA DEL METANO CH4 – FILTRO BAADER 885nm

CH4
2017-05-05 (yyyy-mm-dd) 21:15.7 UT
CM I 65.5° CM II 310.5° CM III 77.1°
EFL = 3000mm



CH4
2017-05-18 (yyyy-mm-dd) 20:52.9 UT
CM I 304.6° CM II 90.6° CM III 220.6°
EFL = 3000mm

Jupiter and Ganymede

R+IR 610nm

SCT C11 XLT 280mm AZ-NEQ6 Pro - Camera ZWO ASI 178M
ATIK EFW2 - Barlow Zeiss Abbe - EFL=7000mm
Seeing 6-7/10, Transp.:8/10

Saturn

R G B
2017-07-20 (yyyy-mm-dd) 21:09.4 UT
CM I 275.4° CM II 99.3° CM III 221.9°
Planet Diam = 18.0" h. = 28°
Winjupos Derotation 12 minutes

SCT C11 XLT 280mm AZNEQ6 Pro - Camera ZWO ASI 178M - ZWO ADC
Baader 36mm RGB Filter - ATIK EFW2 - Barlow Zeiss Abbe - 0,11"/pixel
Seeing 6/10, Transp.:8/10

Saturn

R G B
2017-07-20 (yyyy-mm-dd) 21:33.4 UT
CM I 289.4° CM II 112.9° CM III 235.5°
Planet Diam = 18.0" h. = 27°
Winjupos Derotation 24 minutes

SCT C11 XLT 280mm AZNEQ6 Pro - Camera ZWO ASI 178M - ZWO ADC
Baader 36mm RGB Filter - ATIK EFW2 - Barlow Zeiss Abbe - 0,12"/pixel
Seeing 6/10, Transp.:8/10

Uranus

Winjupos Simulation

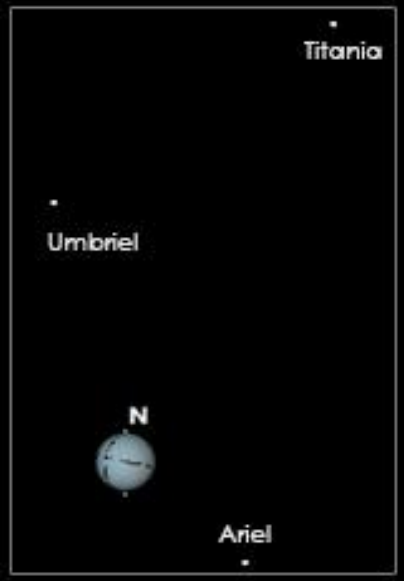
False Colour

R+IR 610nm Resize 2X
UT 23:29.6 Mid (25 mins)
CM=352.5°

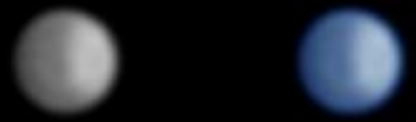
Raw Image

SCT C11 XLT (280mm) 2017-09-22 (yyyy-mm-dd)
Camera ASI178 mono - Resolution: 0.14"/pixel - exp.:52ms , 16000/28000
Alt.:56° , App.Diam.: 3,7" , Elongation: 152,6° W, Mag:+5,7
Seeing 6-7/10 , Transp.: Good

Uranus



Raw Image

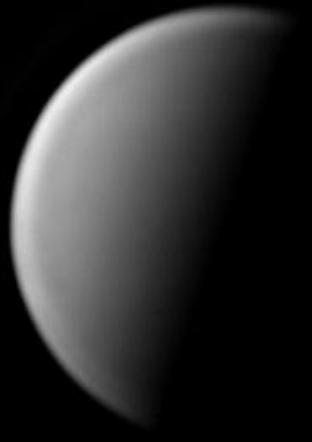


R+IR 610nm Resize 2X
UT 02:16.5 Mid (20 mins)
CM=176.9°

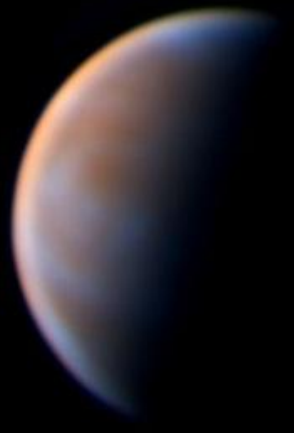
SCT C11 XLT (280mm) 2017-08-09 (yyyy-mm-dd)
Camera ASI174 mono - Resolution: 0.14"/pixel - exp.:66.5ms , 5000/18039
Alt.:55° , App.Diam.: 3,6" , Elongation: 108,2° W, Mag:+5,8
Seeing 6-7/10 , Transp.: Good

Venus 2017 January 14

Baader IR>685nm

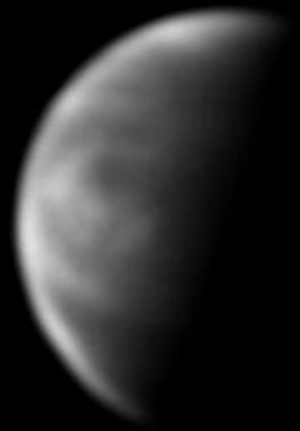


UT 15:12 Mid
CM1=217,5° CM2= 250,0°



IR (G) UV

Baader UV 350nm



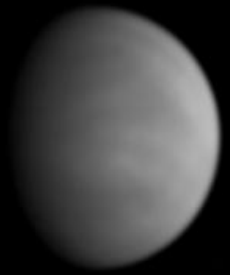
UT 15:24 Mid
CM1=217,6° CM2= 250,7°

Illum. 50% - Alt. 40° - Mag. -4,4
Elongation 47,1° E - Diameter 25"

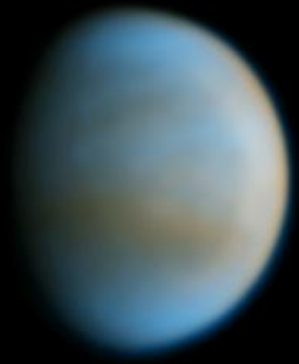
Venus 2017-01-14 (yyyy-mm-dd)
SCT C11 XLT (280mm), AZ-NEQ6 Pro
Camera ASI 178M - Barlow Zeiss Abbe - EFL=6900mm
Seeing 6/10, Transp.:8/10, Light Wind

Venus

IR 1000nm

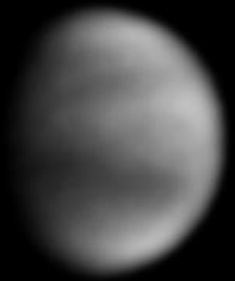


UT 06:12.5 Mid
CM1=337.8° CM2= 103.5°
Alt. 49°



IR (G) UV
Resize 130%

Baader UV 350nm

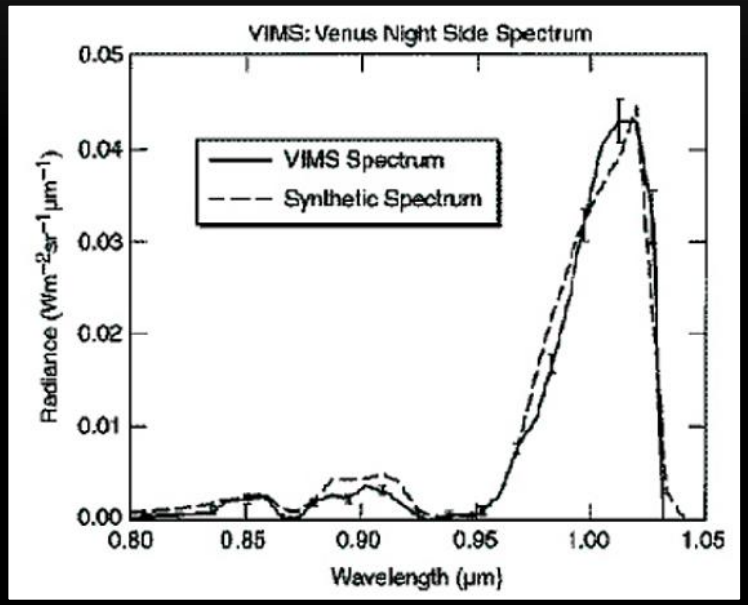


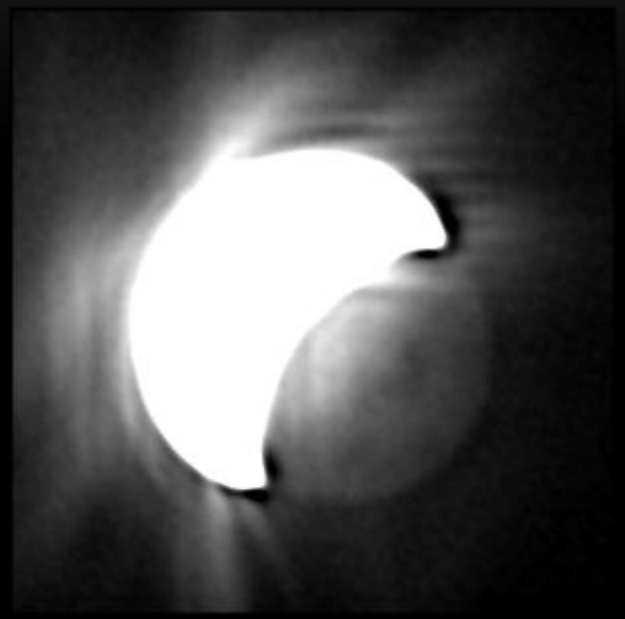
UT 06:04.0 Mid
CM1=337.8° CM2= 102.9°
Alt. 47°

Illum. 83% - Mag. -4,0
Elongation 32.2° W - Diameter 12.5"

2017-08-30 (yyyy-mm-dd)
SCT C11 XLT (280mm), NEQ6 Pro
Camera ASI 178M - Barlow Zeiss Abbe - Resolution=0.07"/pixel
Seeing 6-7/10, Transp.:8/10, Light Wind

RIPRENDERE LA SUPERFICIE VENUSIANA - **VENUS NIGHTSIDE** – EMISSIONE TERMICA





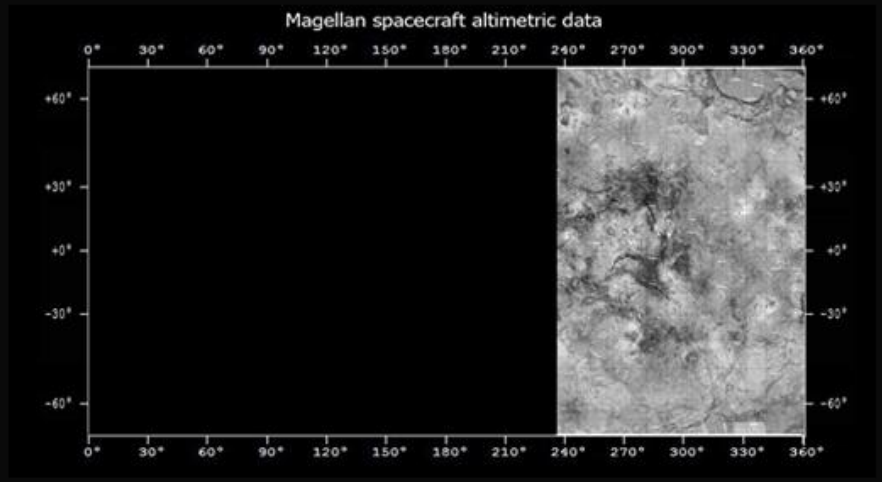
PRIMA RIPRESA DELL' EMISSIONE TERMICA DA TERRA AD OPERA DI CRISTOPHER PELLIER

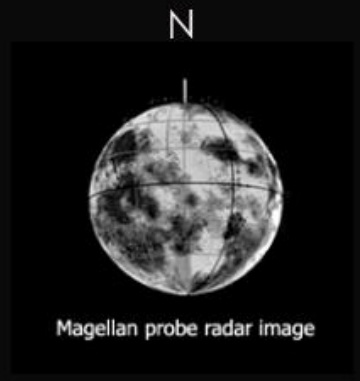
Venus Nightside - Thermal Emission

17:36 UT

about 90° camera rotation

17:54 UT





Venus 2017-03-13 (yyyy-mm-dd)
SCT C11 XLT 280mm @f10, AZ-NEQ6 Pro
Camera ASI 174M
IR Filter 1 micron
Seeing 5-6/10, Transp.:8/10, Light Wind

GRAZIE PER LA VOSTRA ATTENZIONE

Cieco chi guarda il cielo senza comprenderlo:
è un viaggiatore che attraversa il mondo senza vederlo;
è un sordo in mezzo a un concerto
Camille Flammarion (astronomo, editore e divulgatore scientifico francese , 1842-1925)