

UTJECAJ HELIOGRAFSKE ŠIRINE NA BRZINU ROTACIJE SUNČEVE FOTOSFERE

Vilim Branica

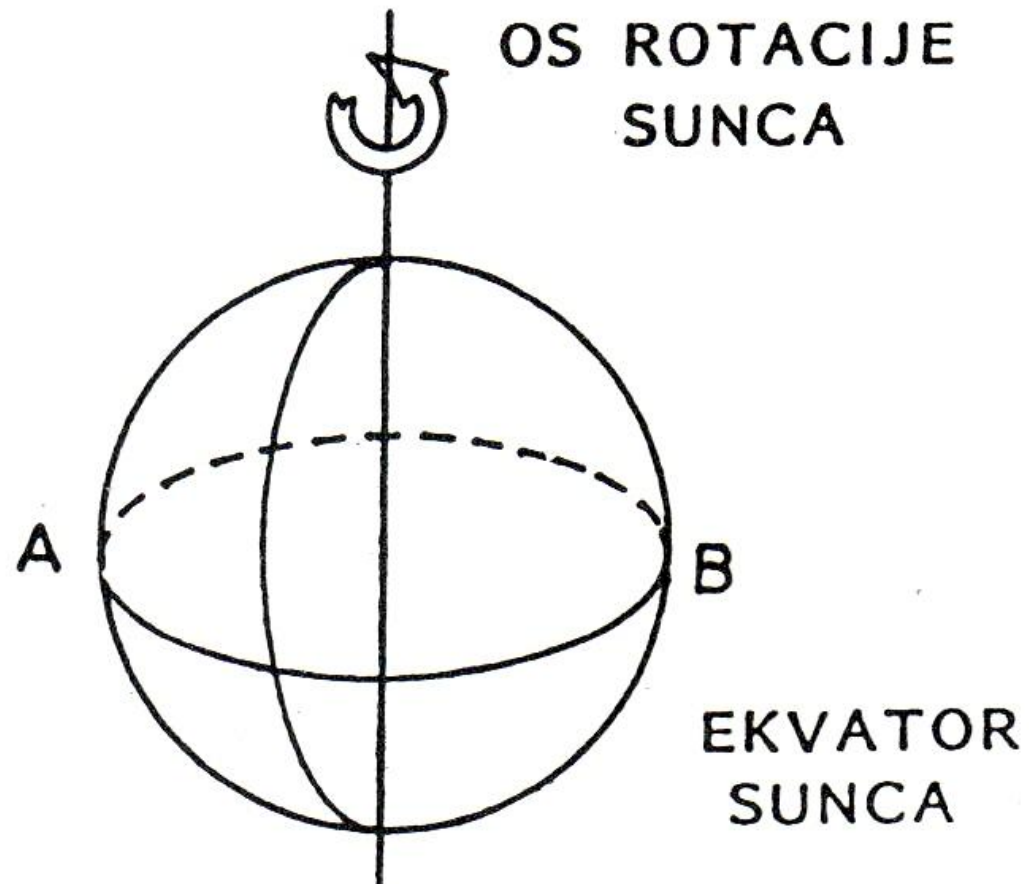
OŠ Jordanovac, Zagreb

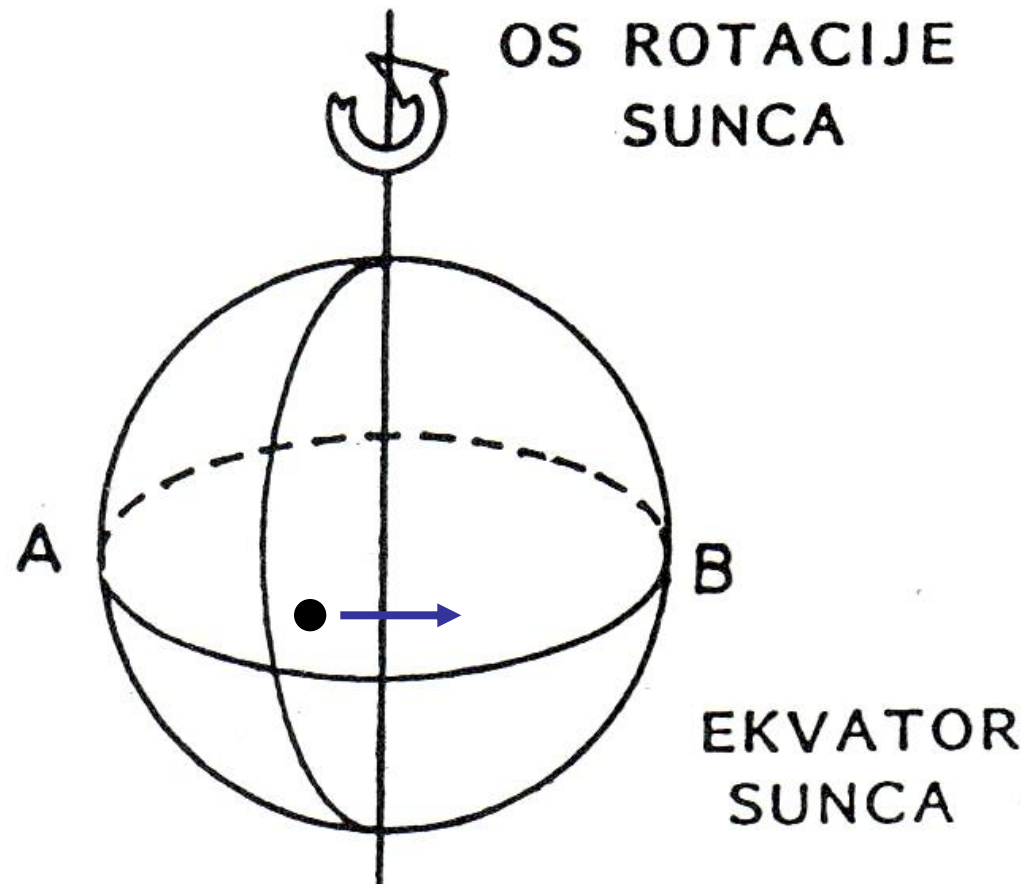
e-mail: vbranica@gmail.com

mentor: Matea Čiča, prof.

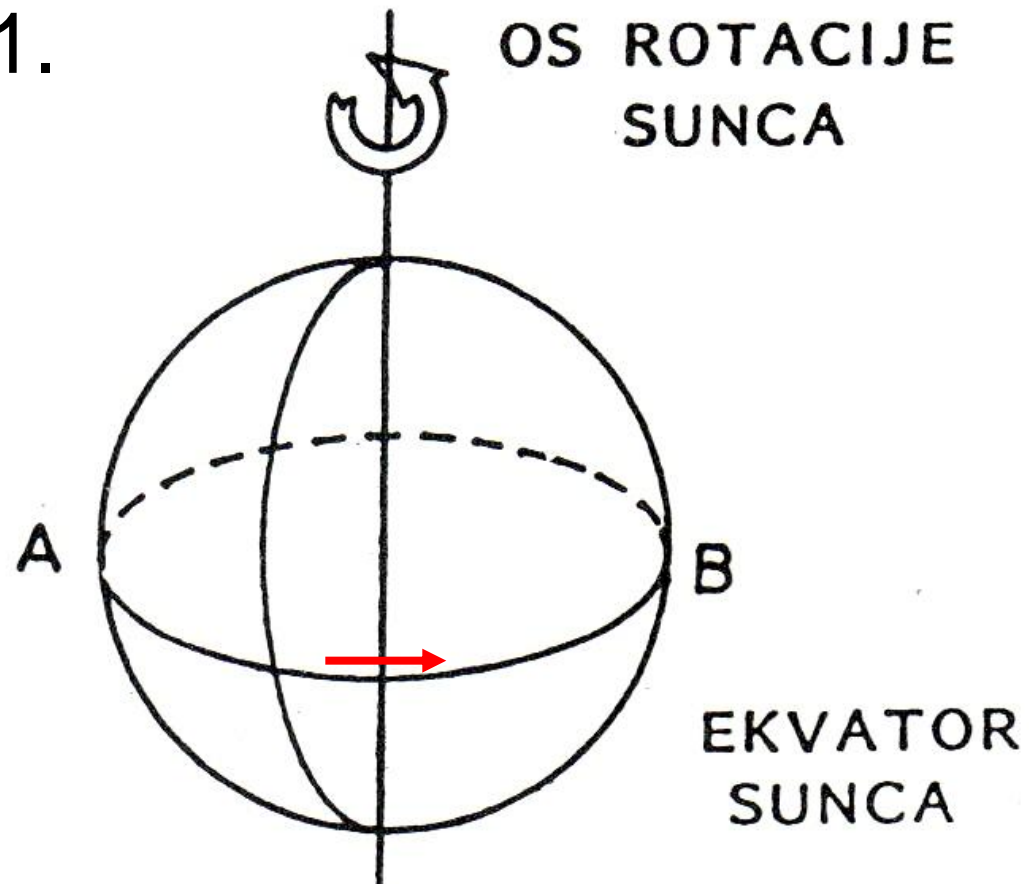


Temperatura
na površini
6000 °C

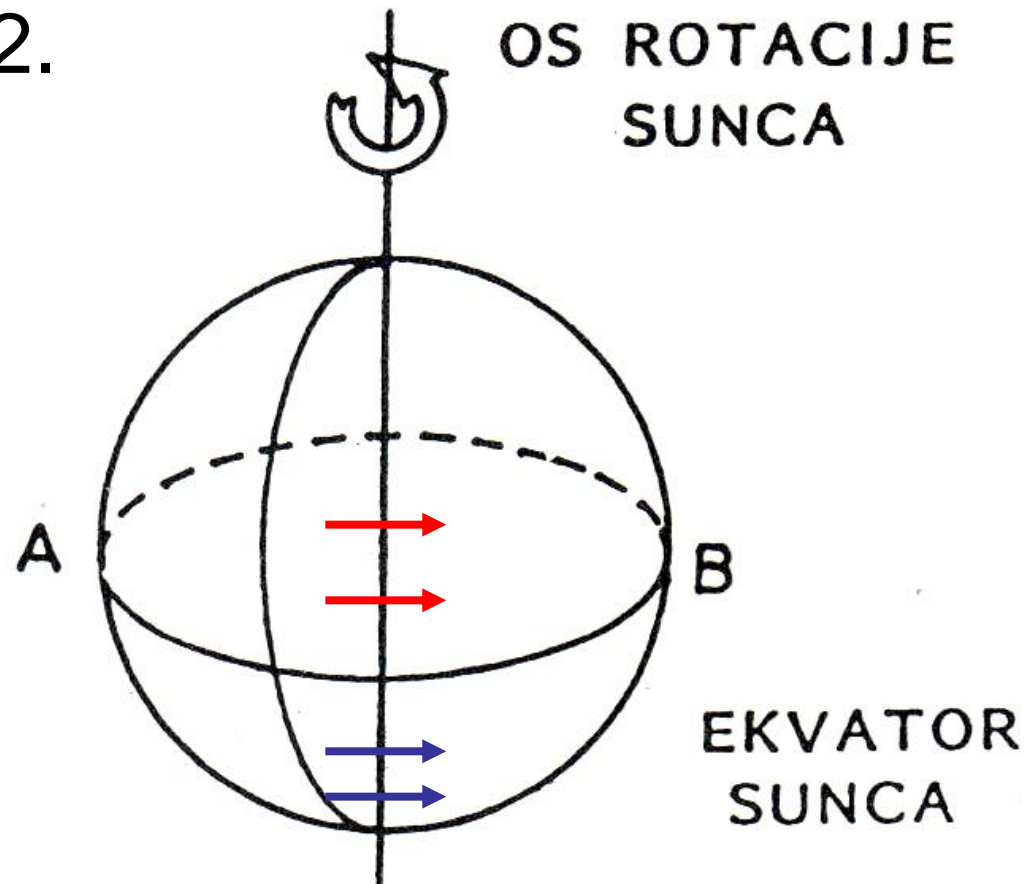




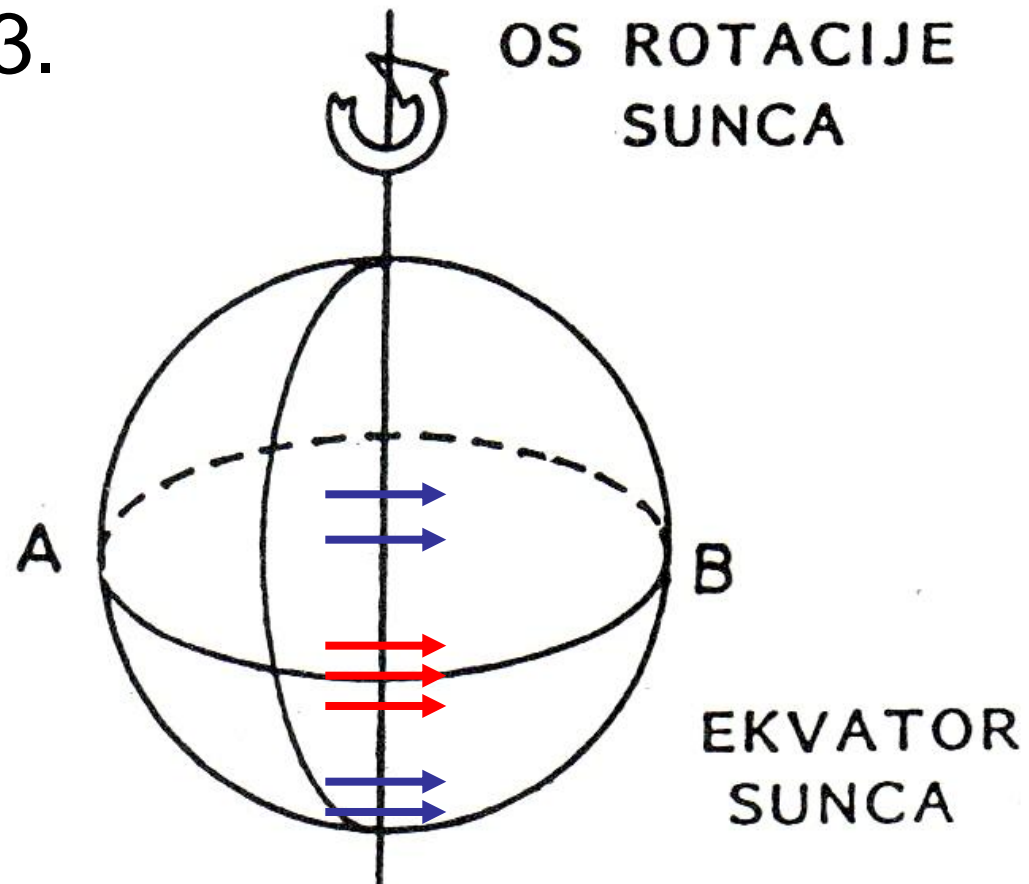
CILJ 1.

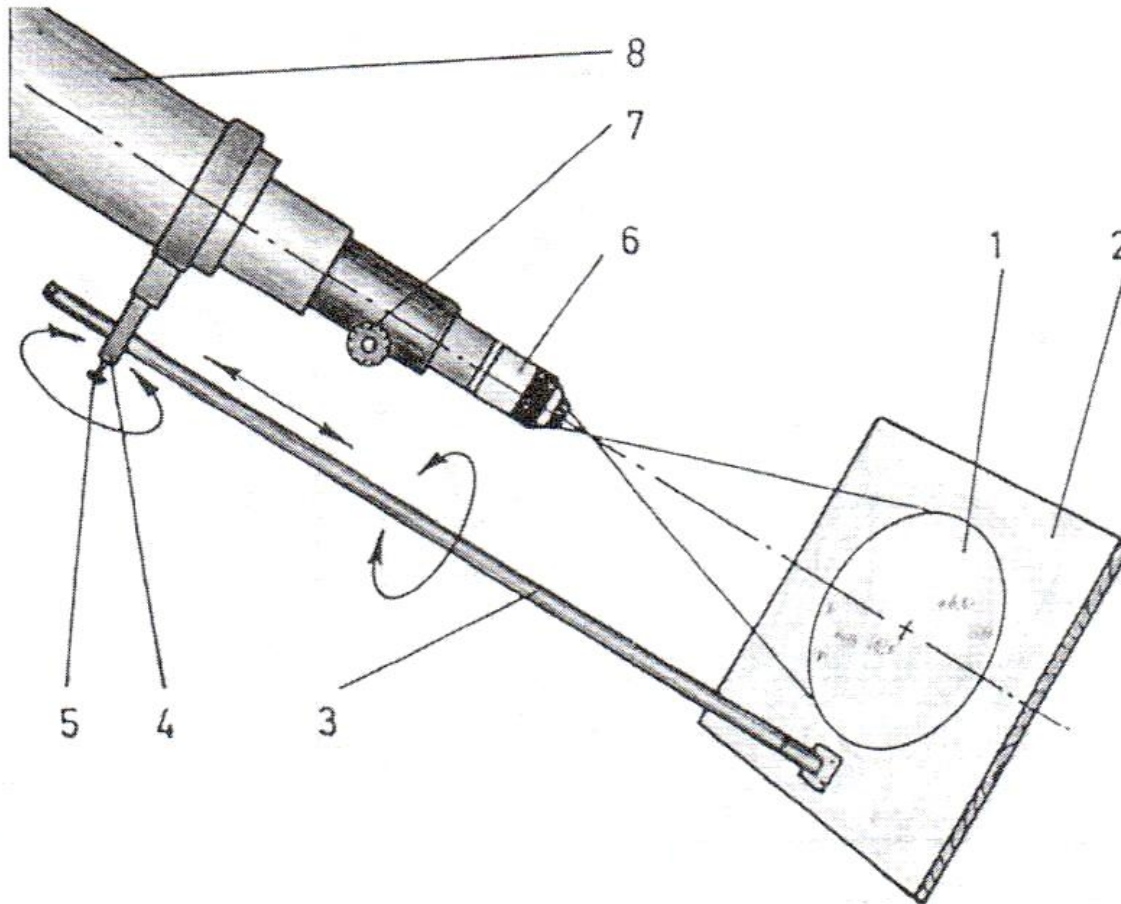


CILJ 2.



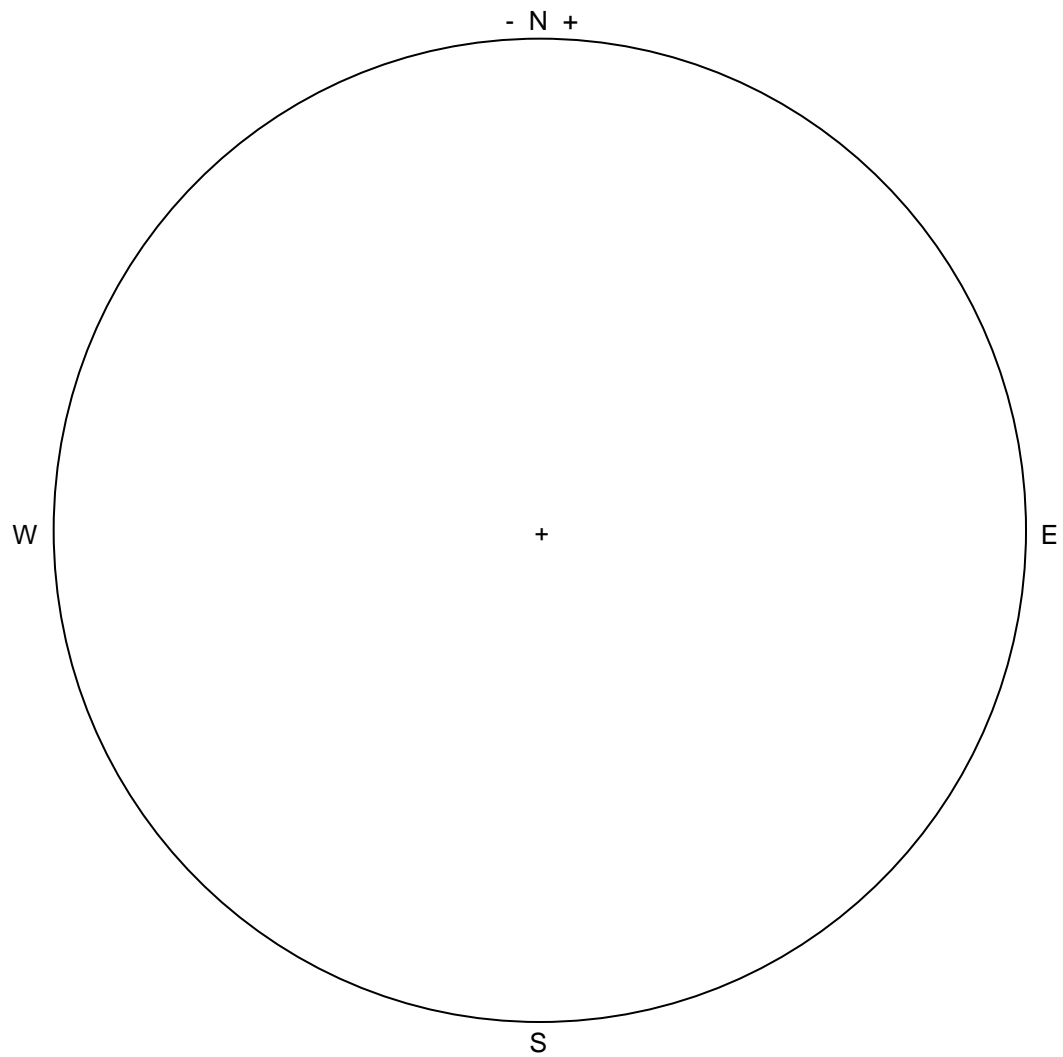
CILJ 3.



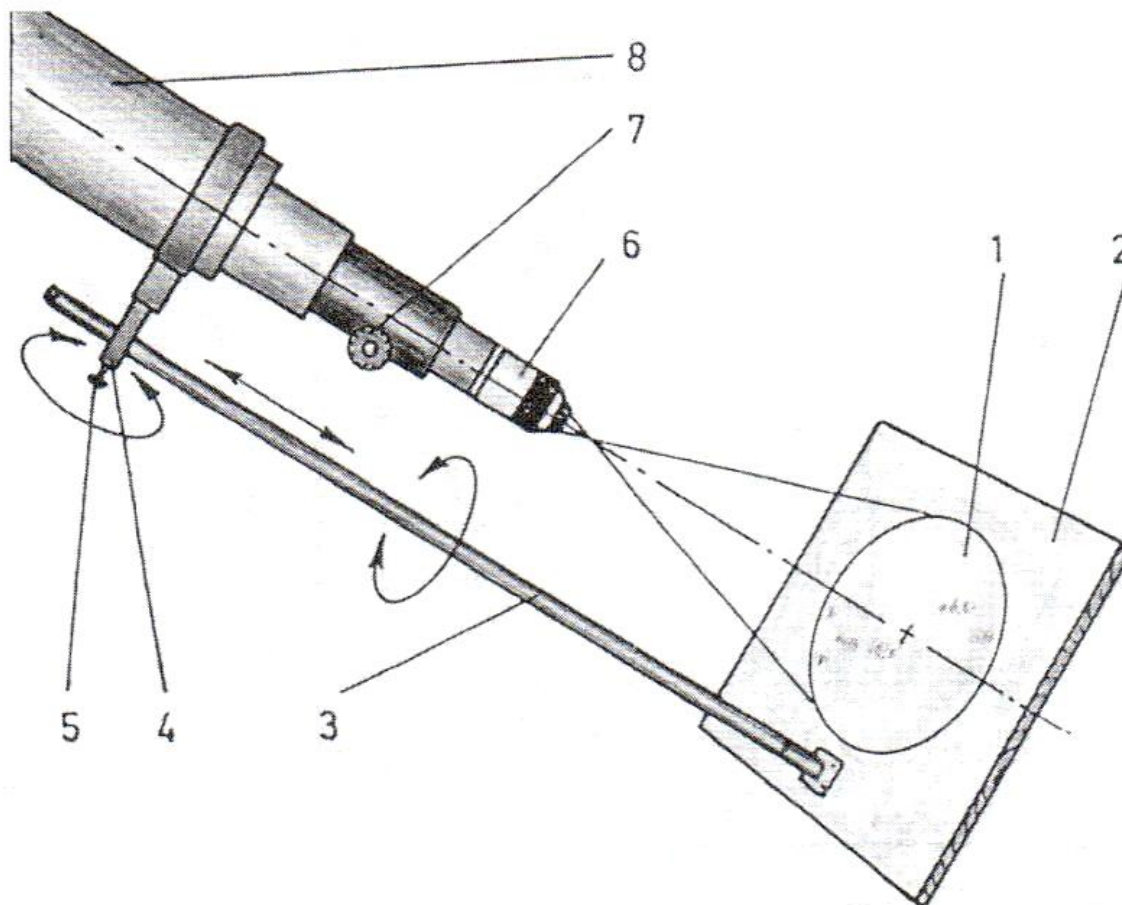


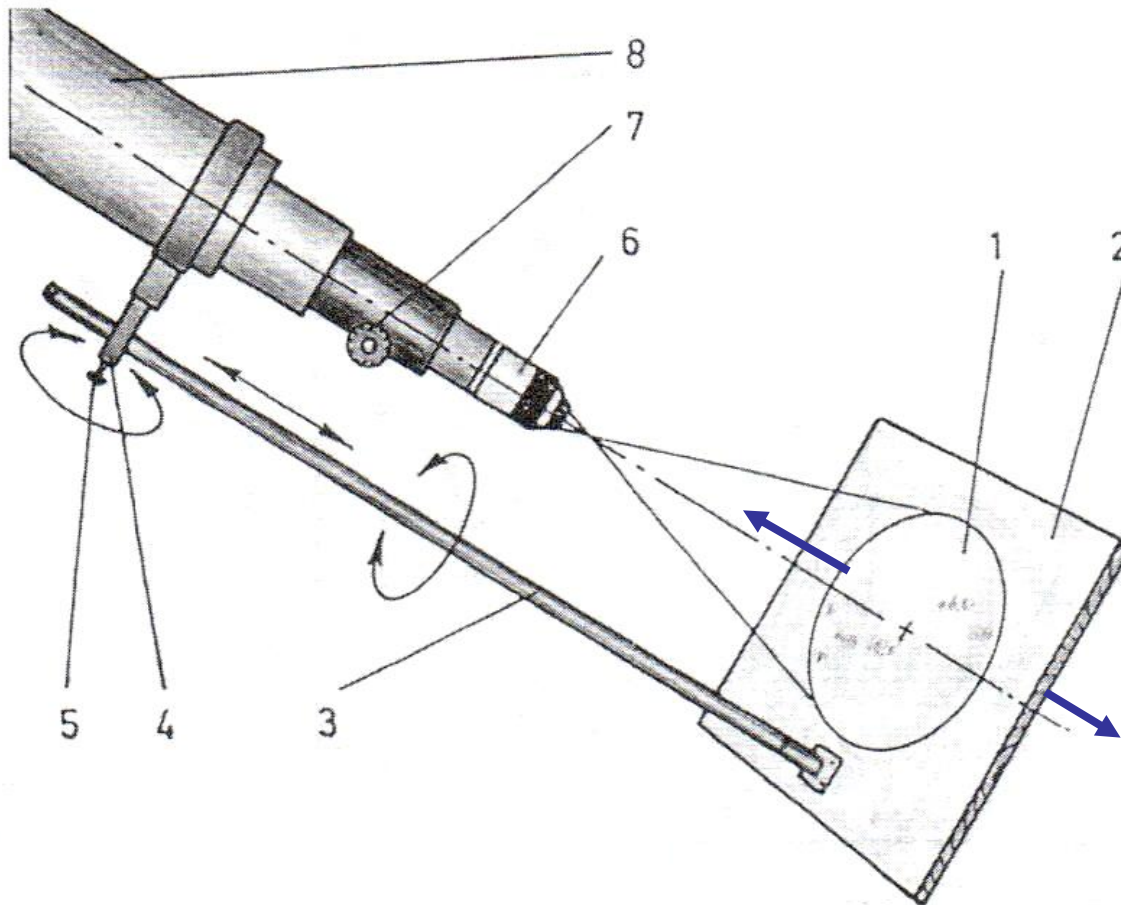
Metoda projekcije Sunčeve slike

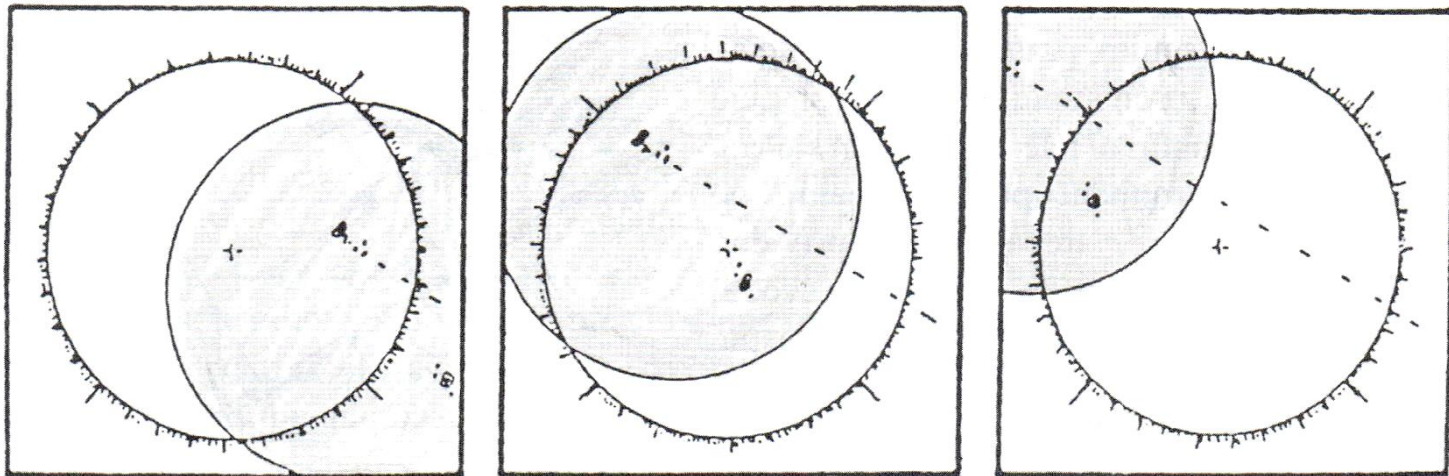
CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
			KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica

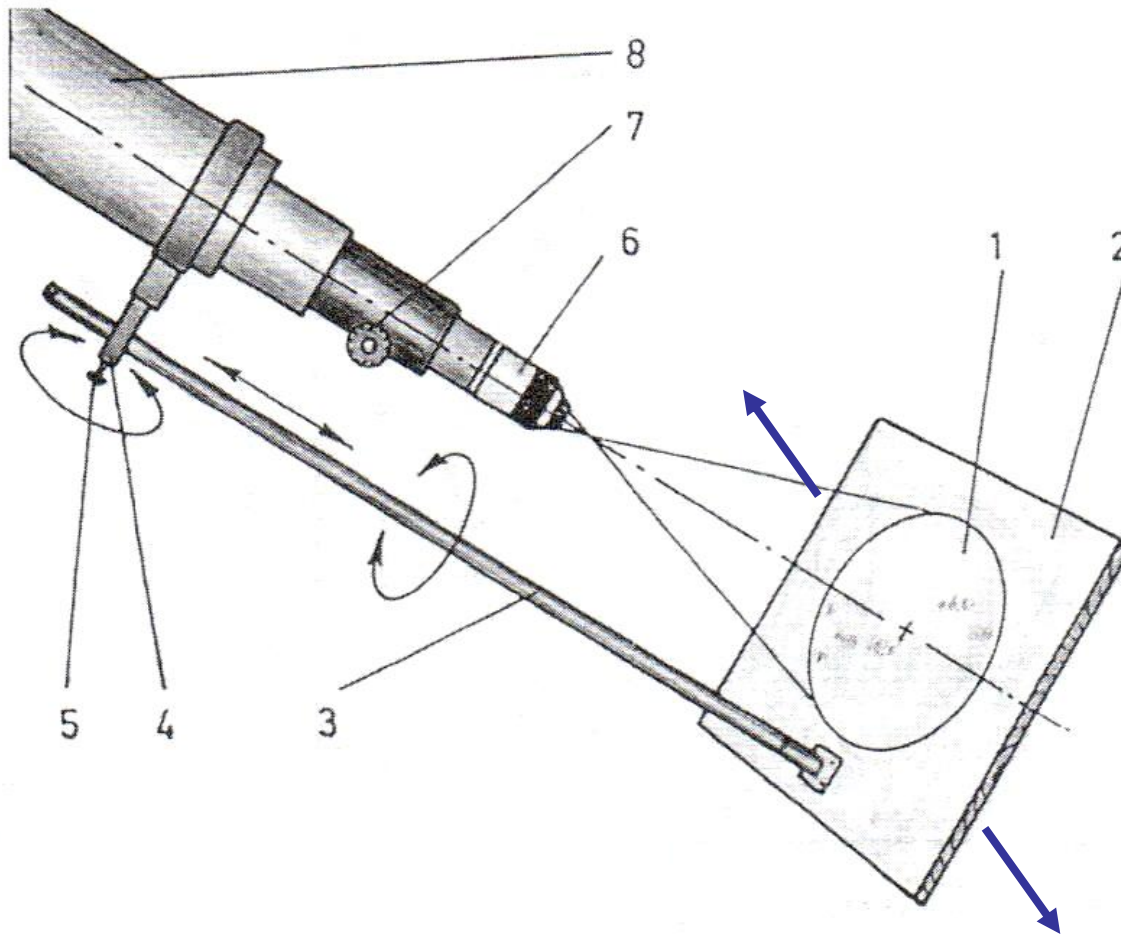


Primjedbe	P	B ₀	L ₀
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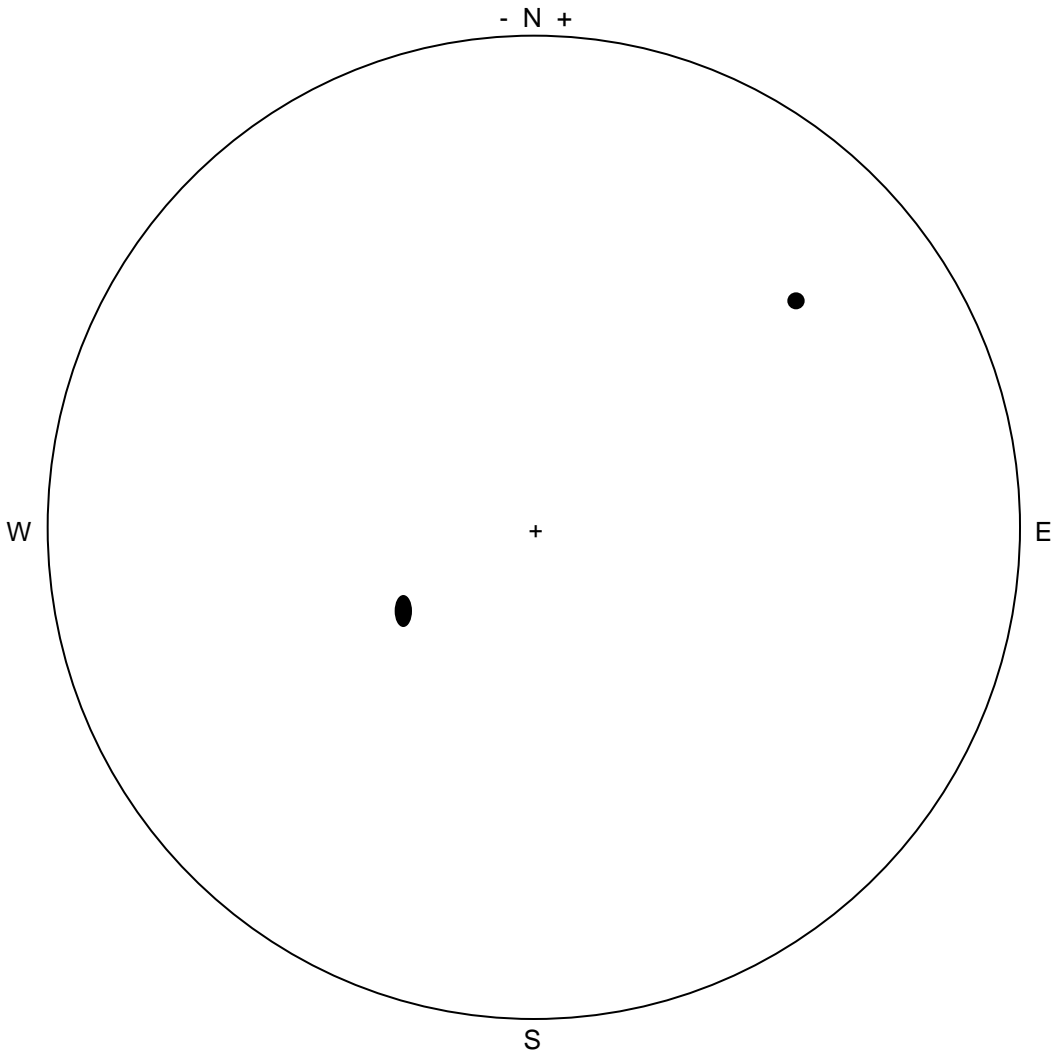






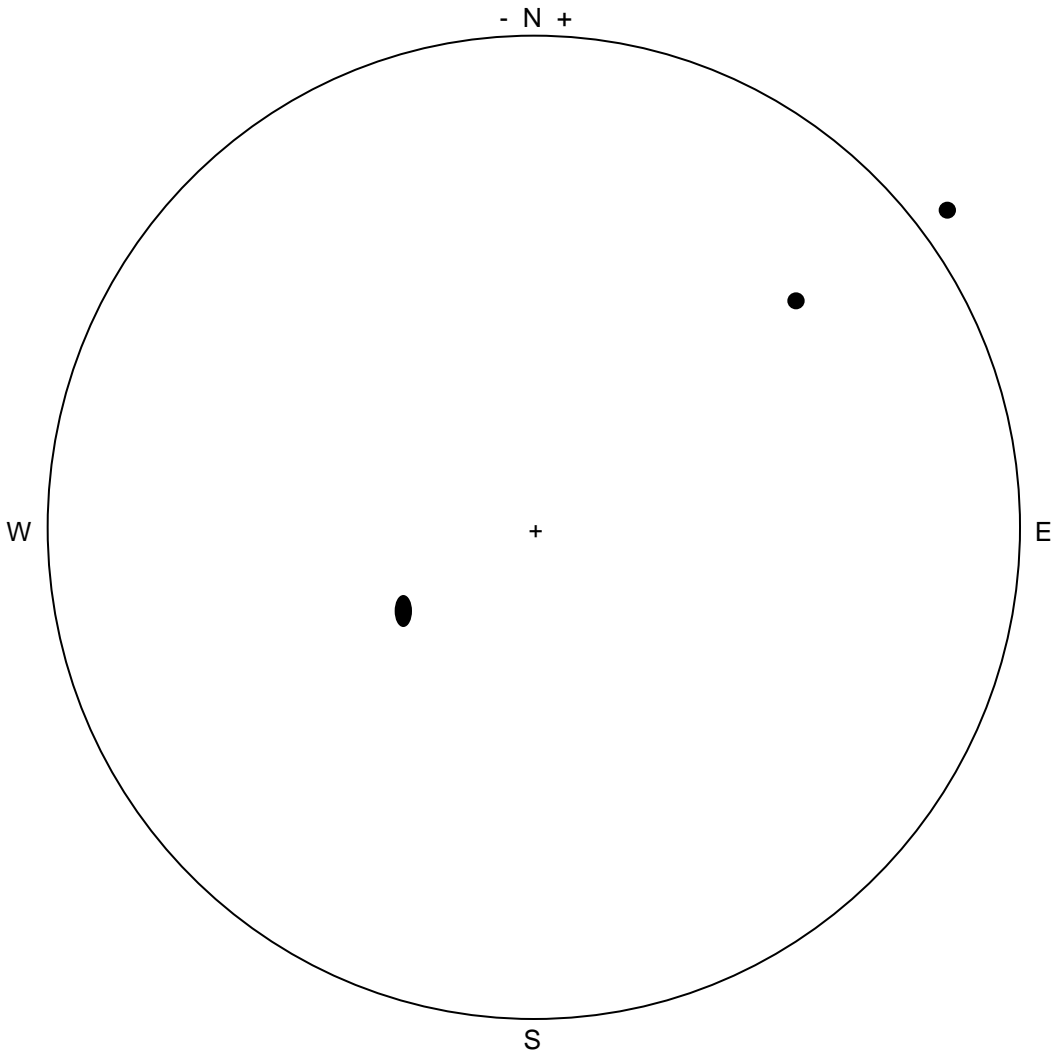


CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



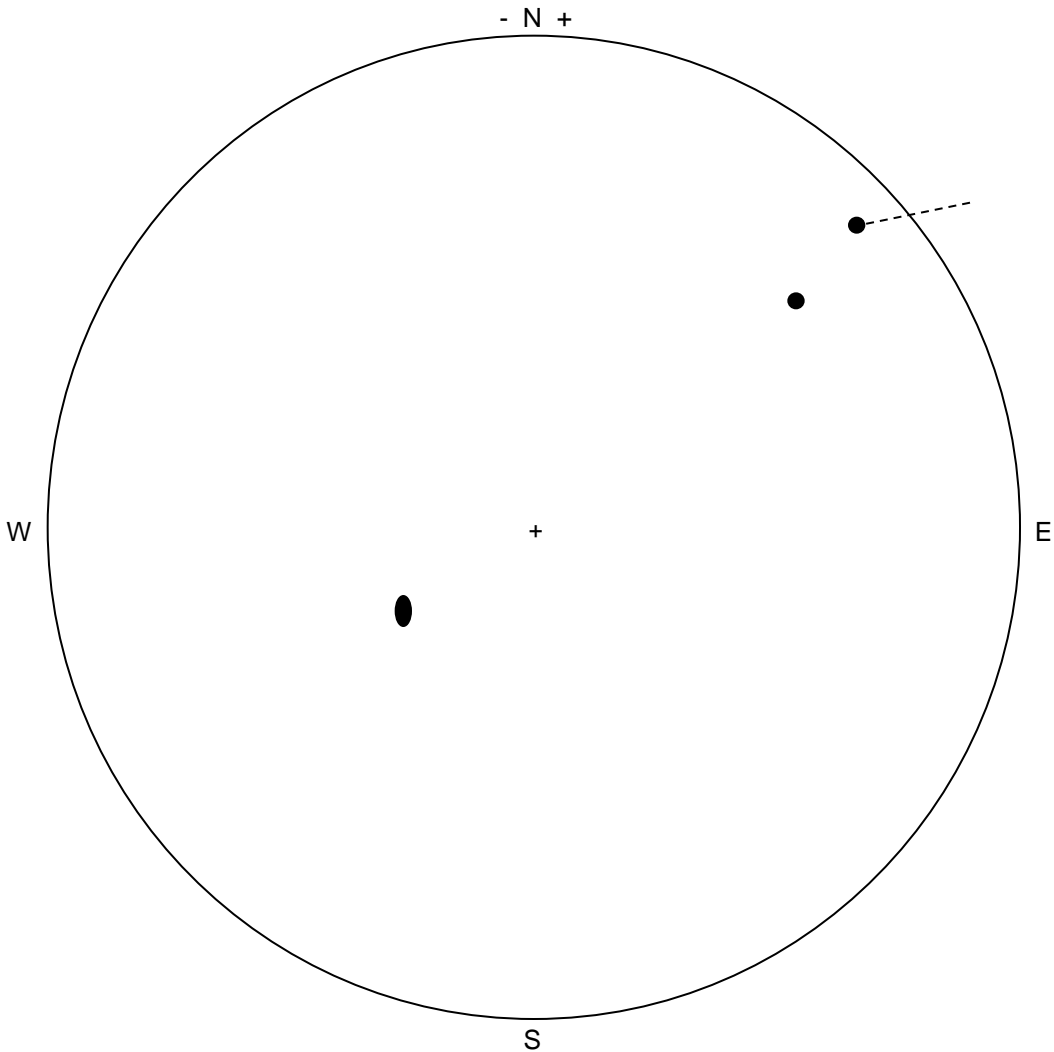
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



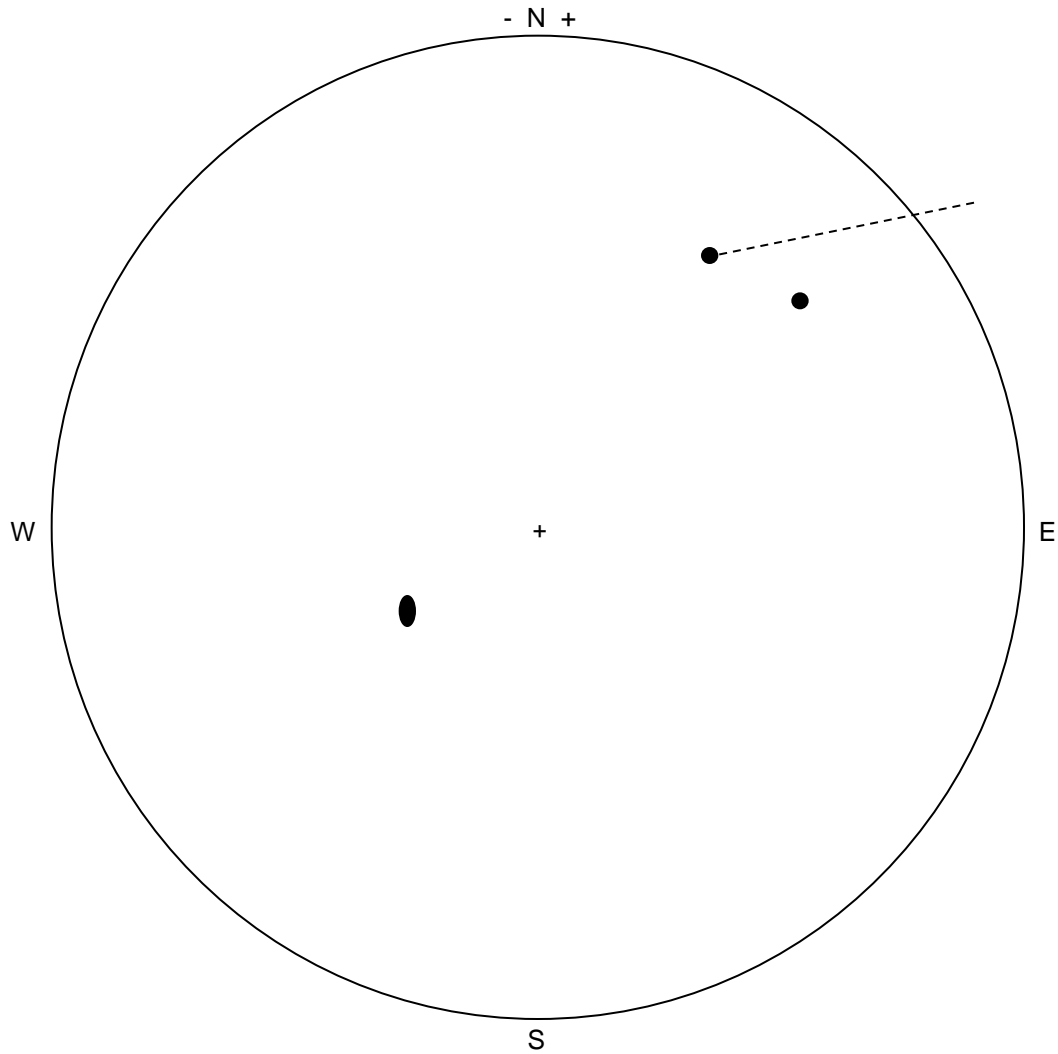
Primjedbe	P	B ₀	L ₀
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



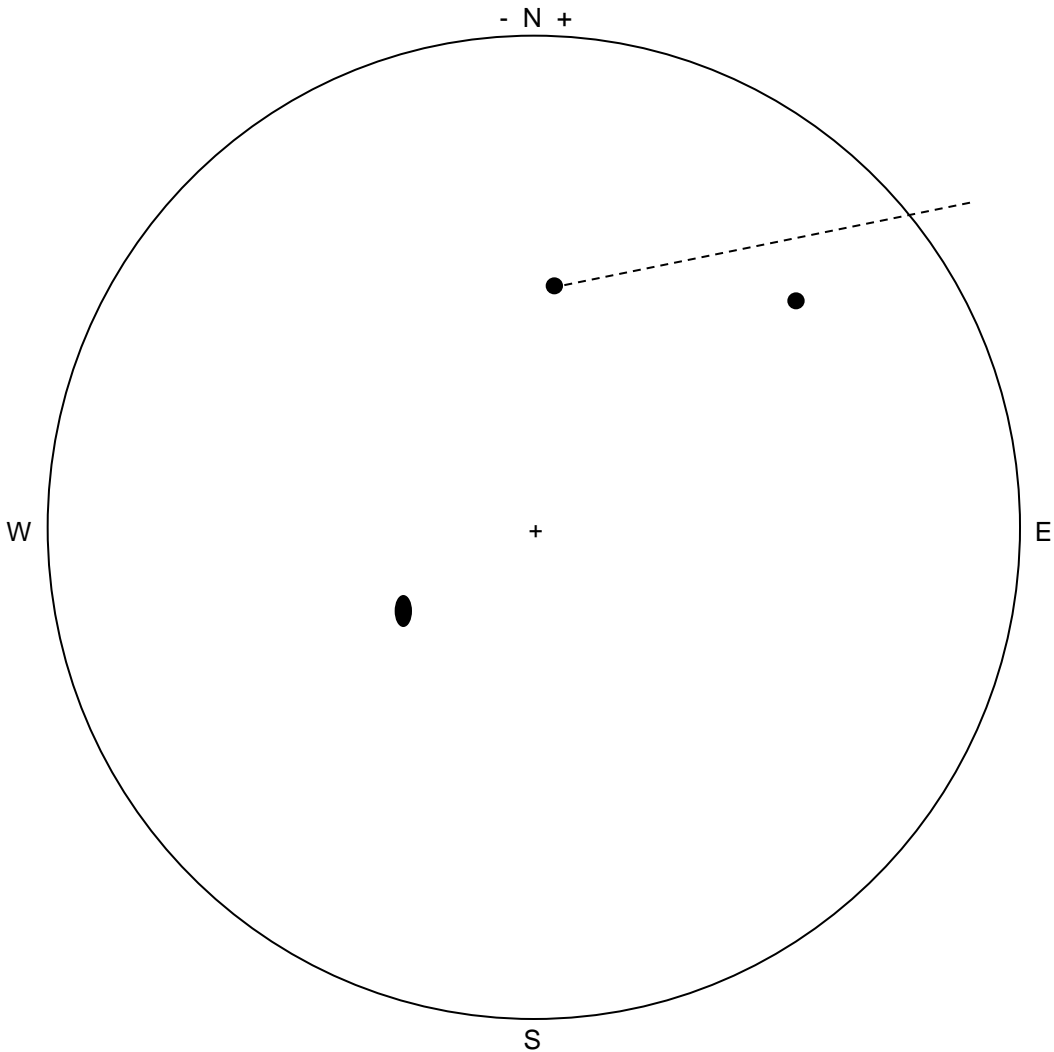
Primjedbe	P	B ₀	L ₀
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



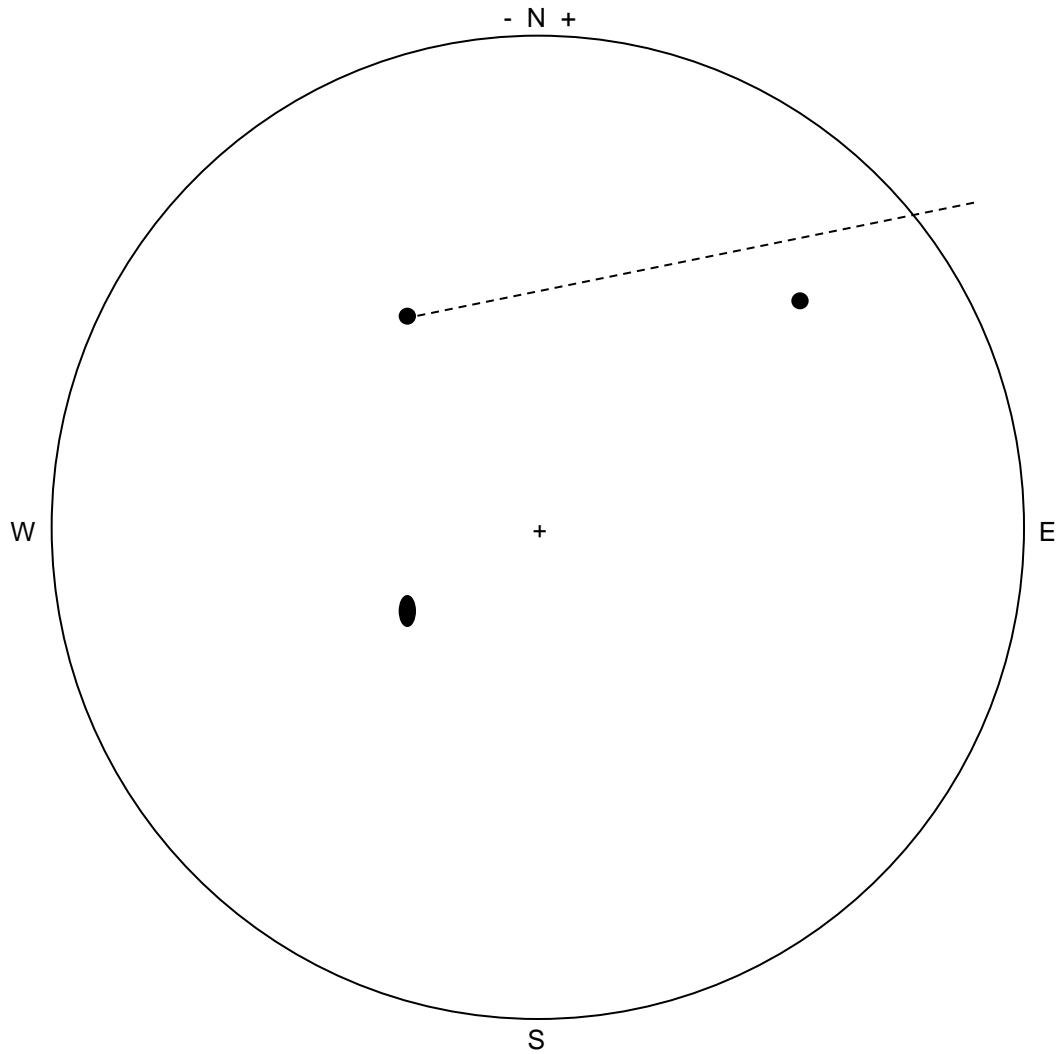
Primjedbe	P	B ₀	L ₀
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



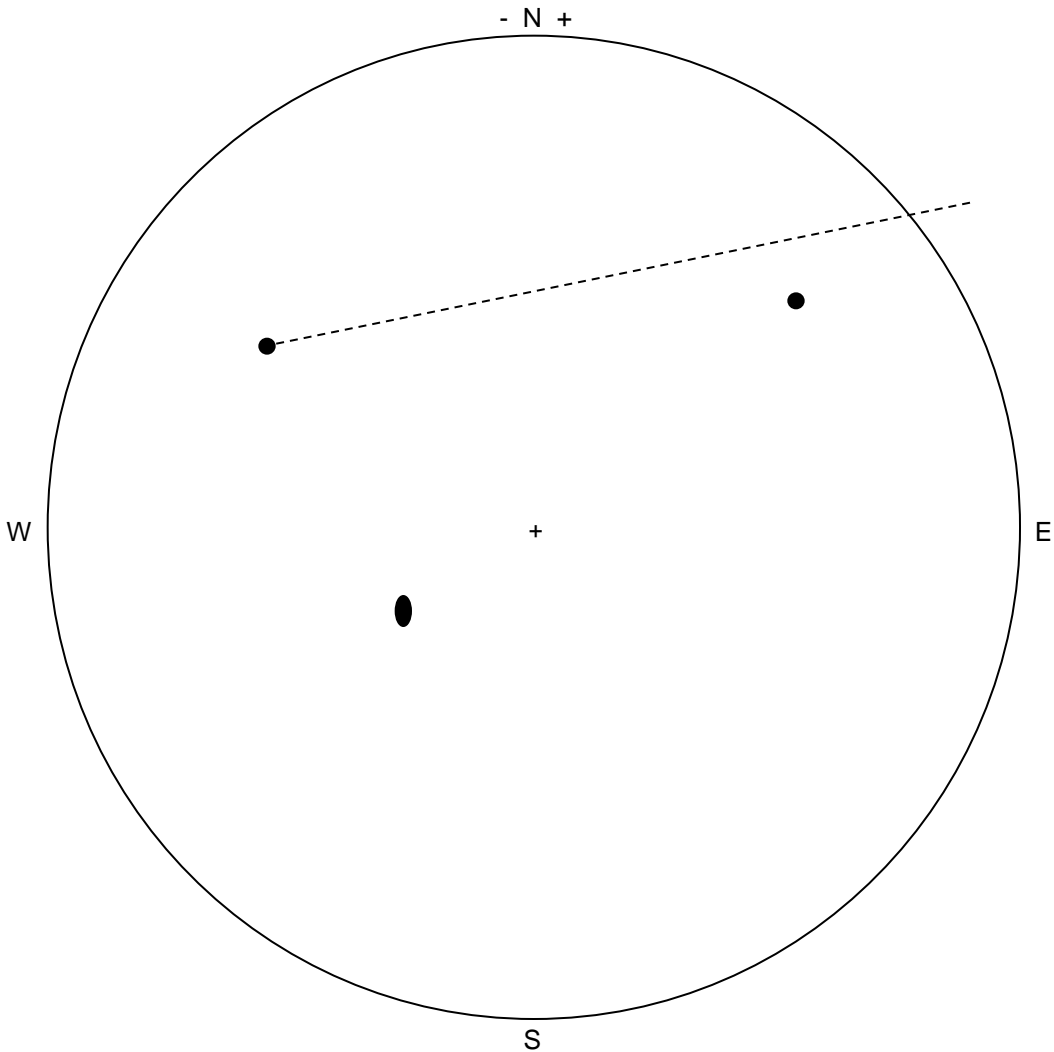
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



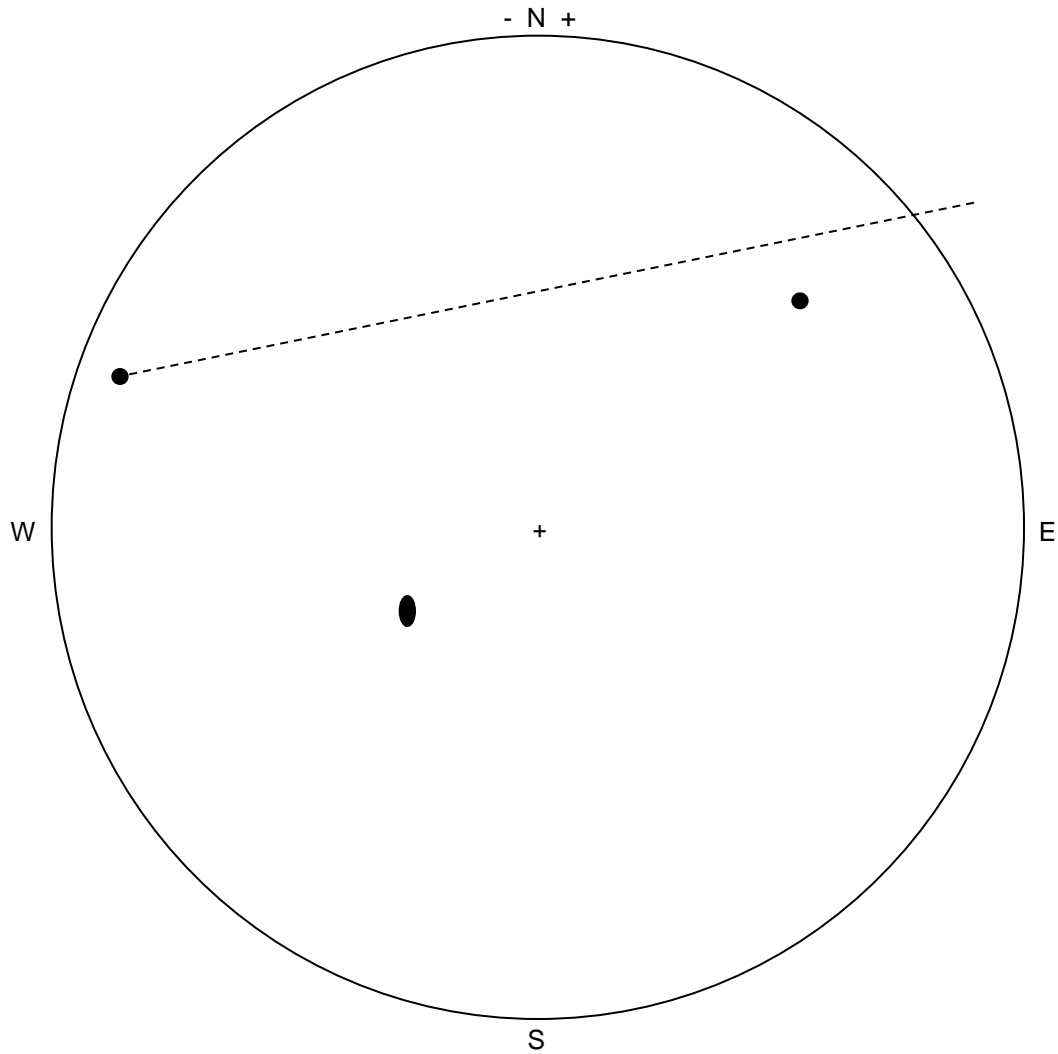
Primjedbe	P	B ₀	L ₀
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



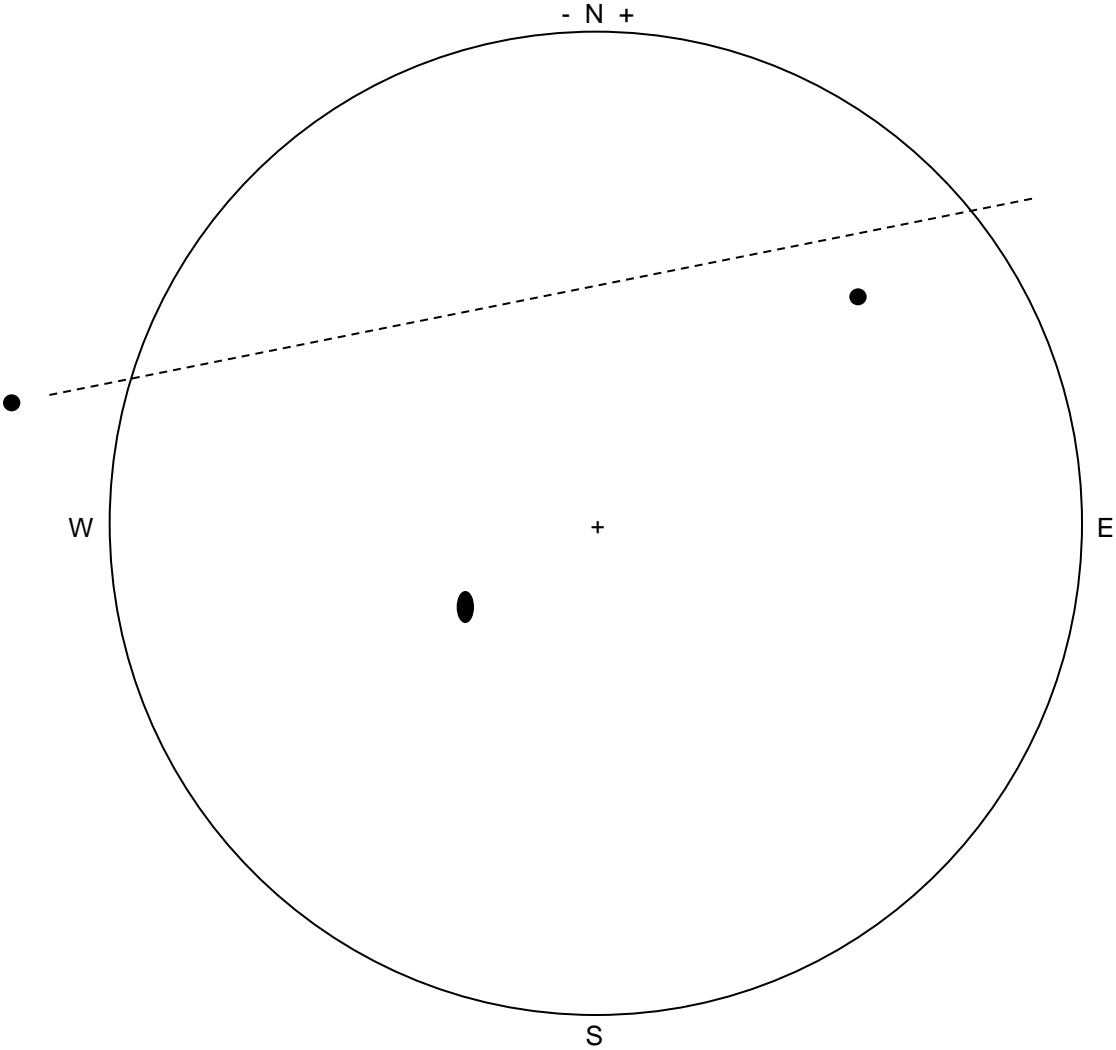
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



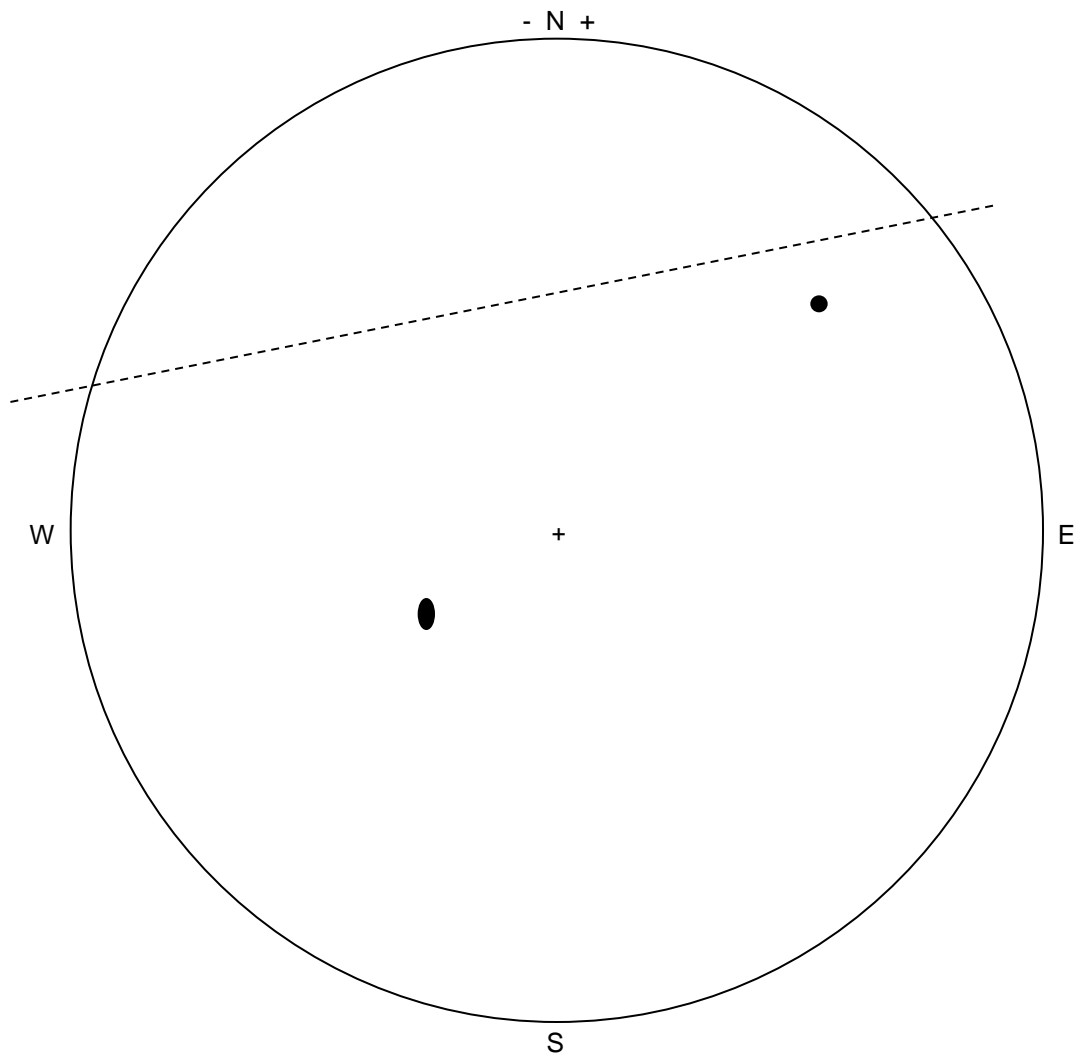
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



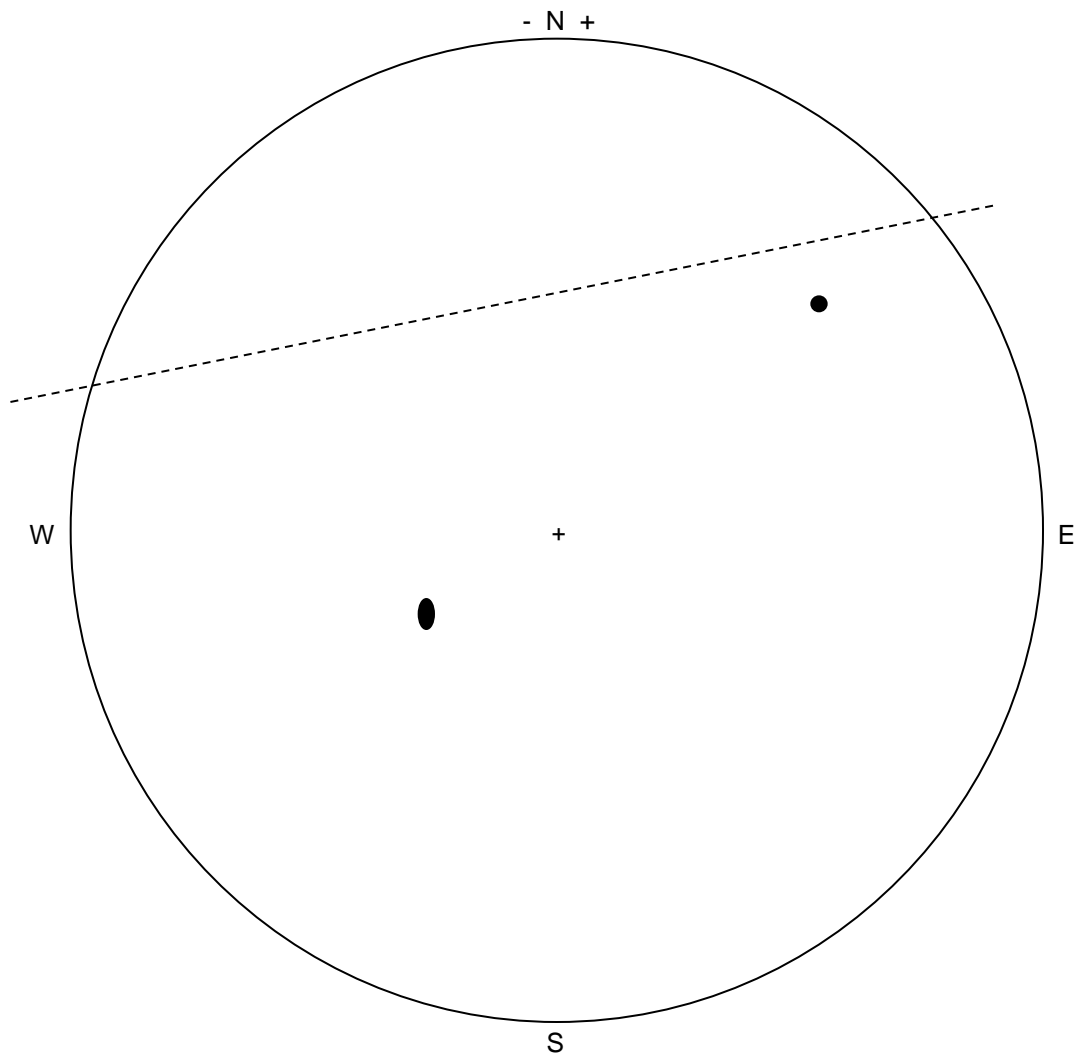
Primjedbe	P	B ₀	L ₀
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



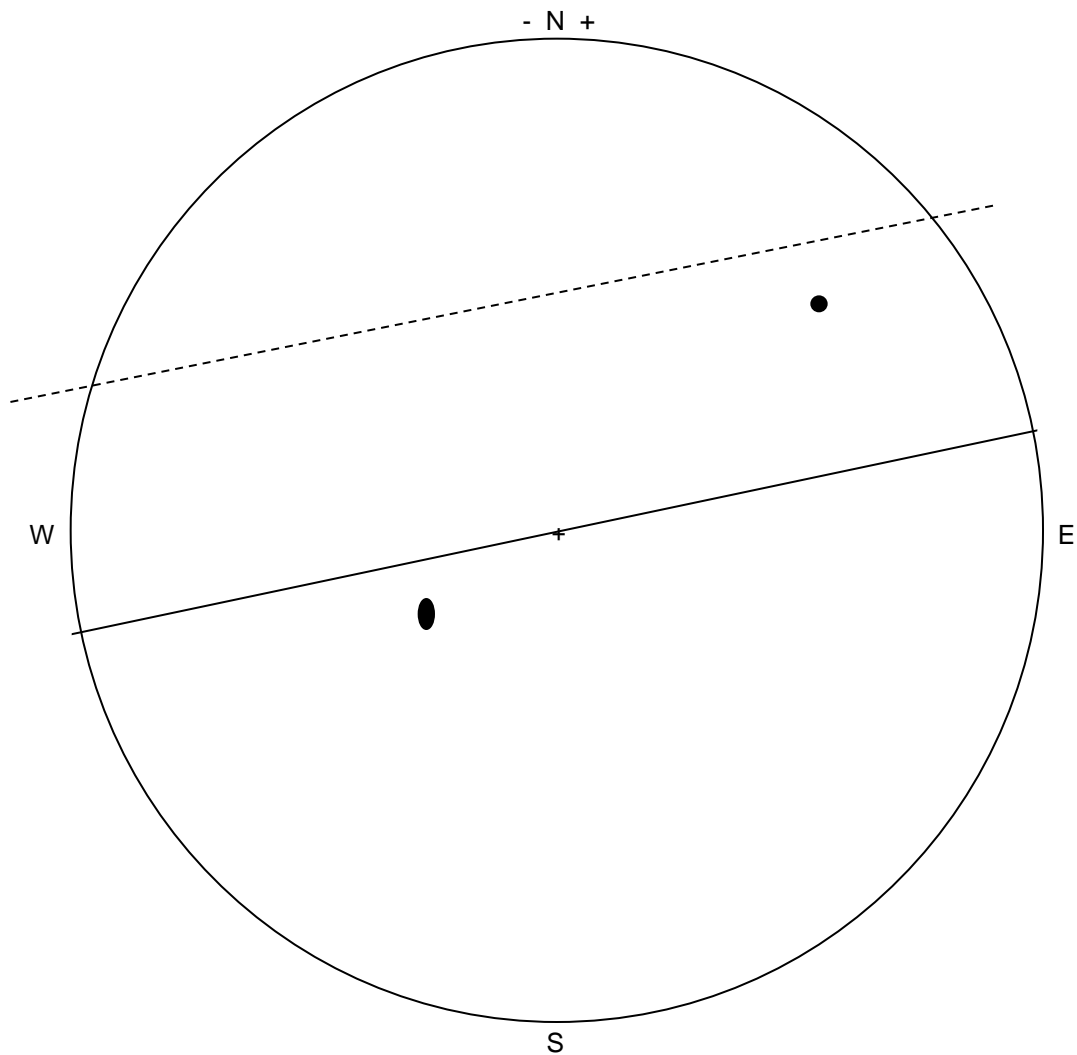
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



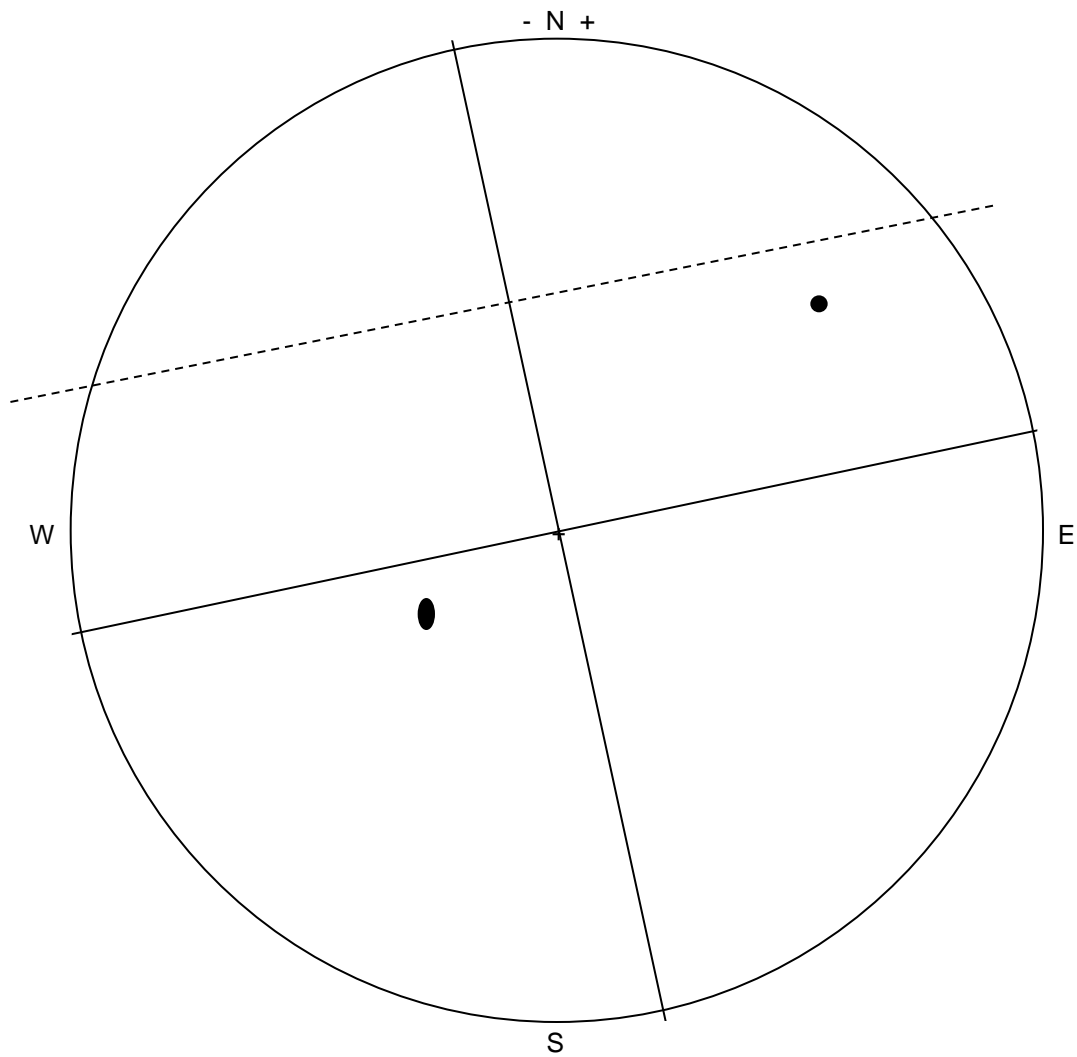
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CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



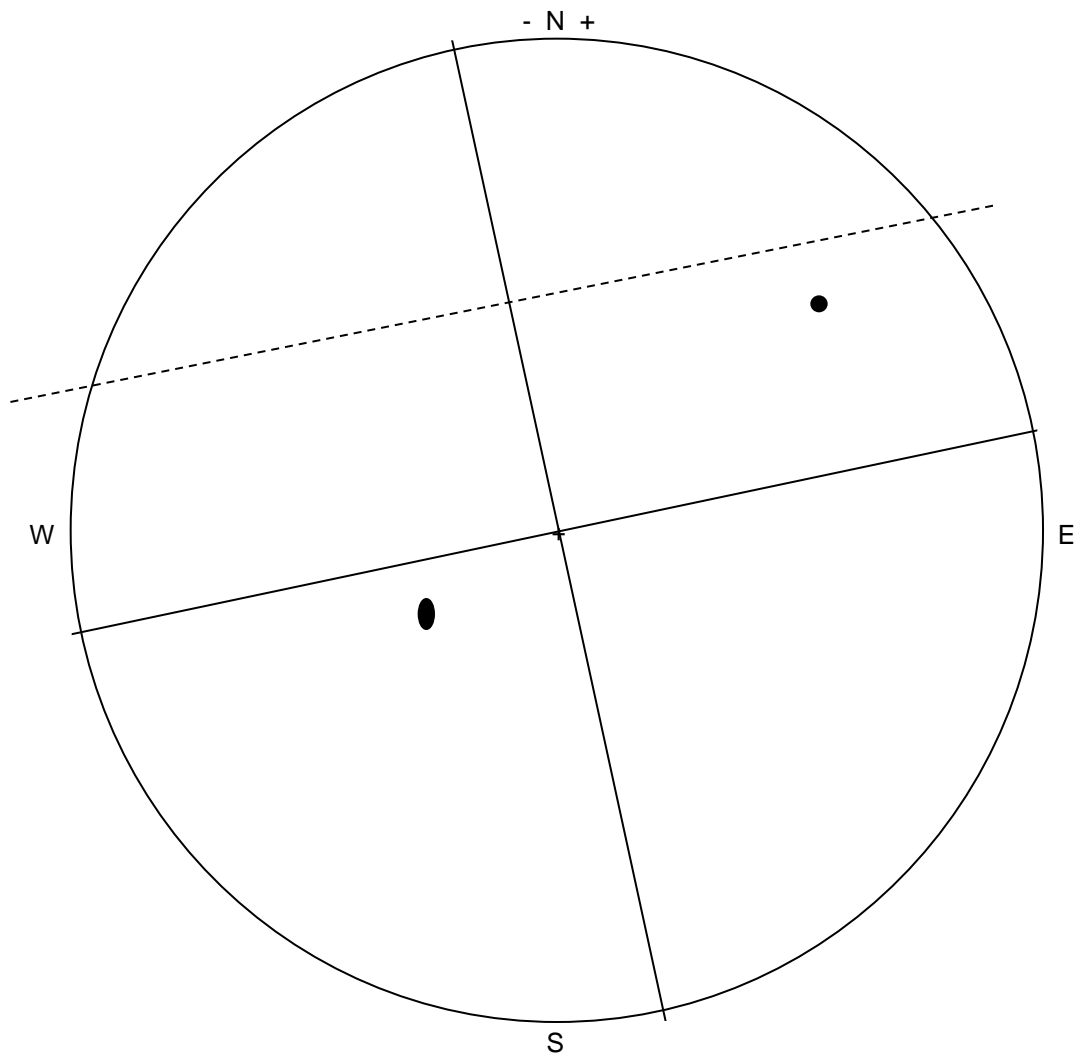
Primjedbe	P	B ₀	L ₀

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



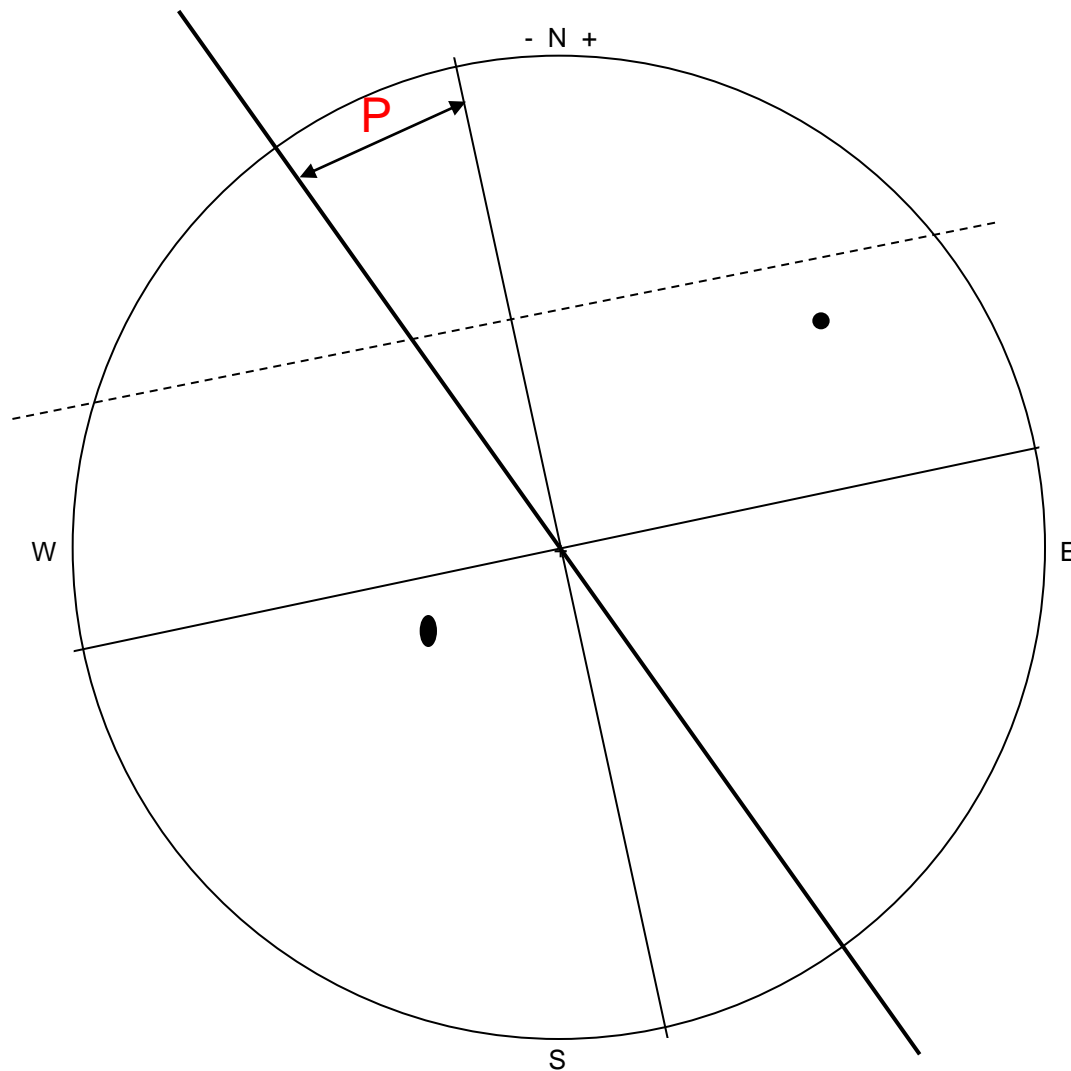
Primjedbe	P	B ₀	L ₀

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



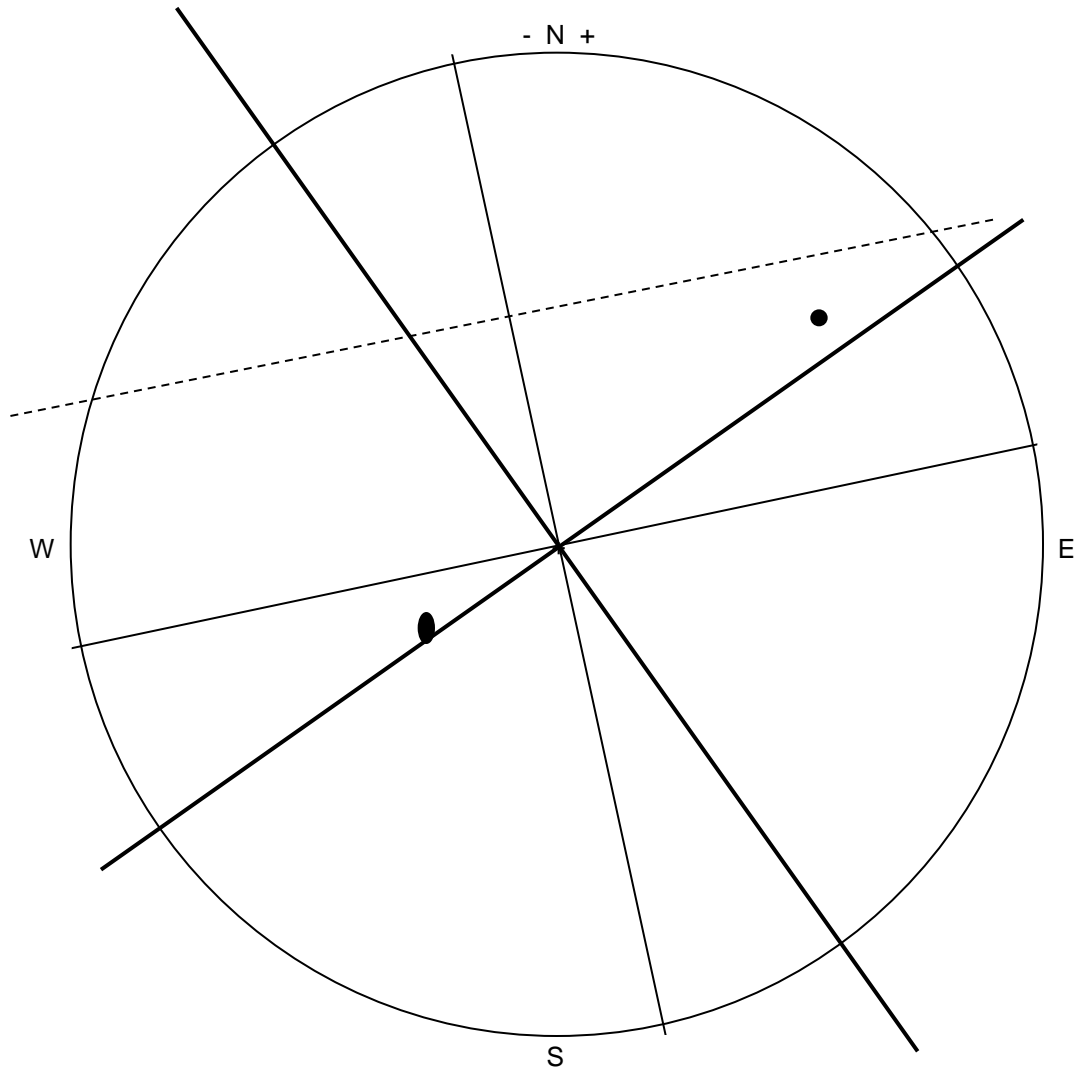
Primjedbe	P	B ₀	L ₀
	- 23,24	- 7,25	172 ,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



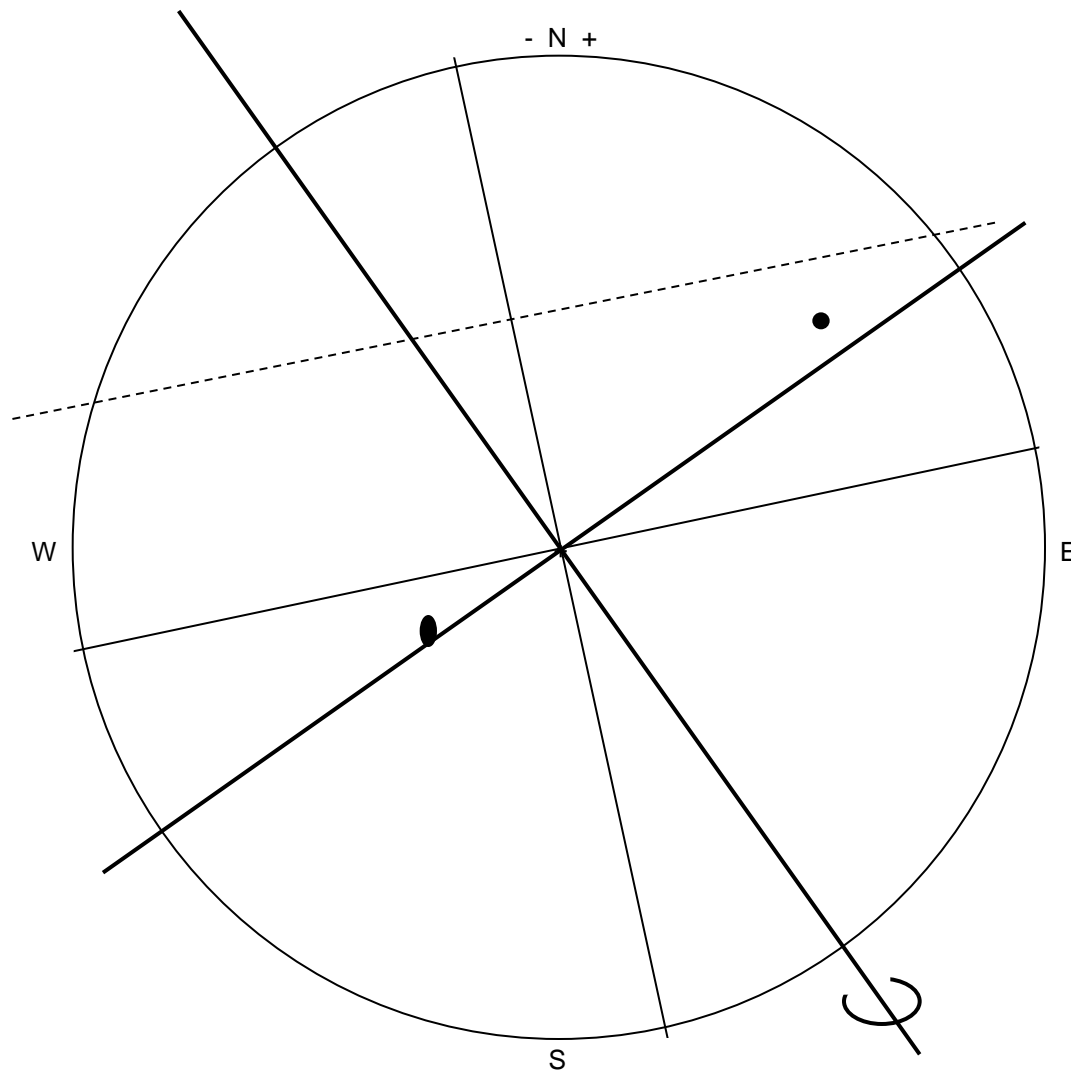
Primjedbe	P	B ₀	L ₀
	- 23,24	-7,25	172 ,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica

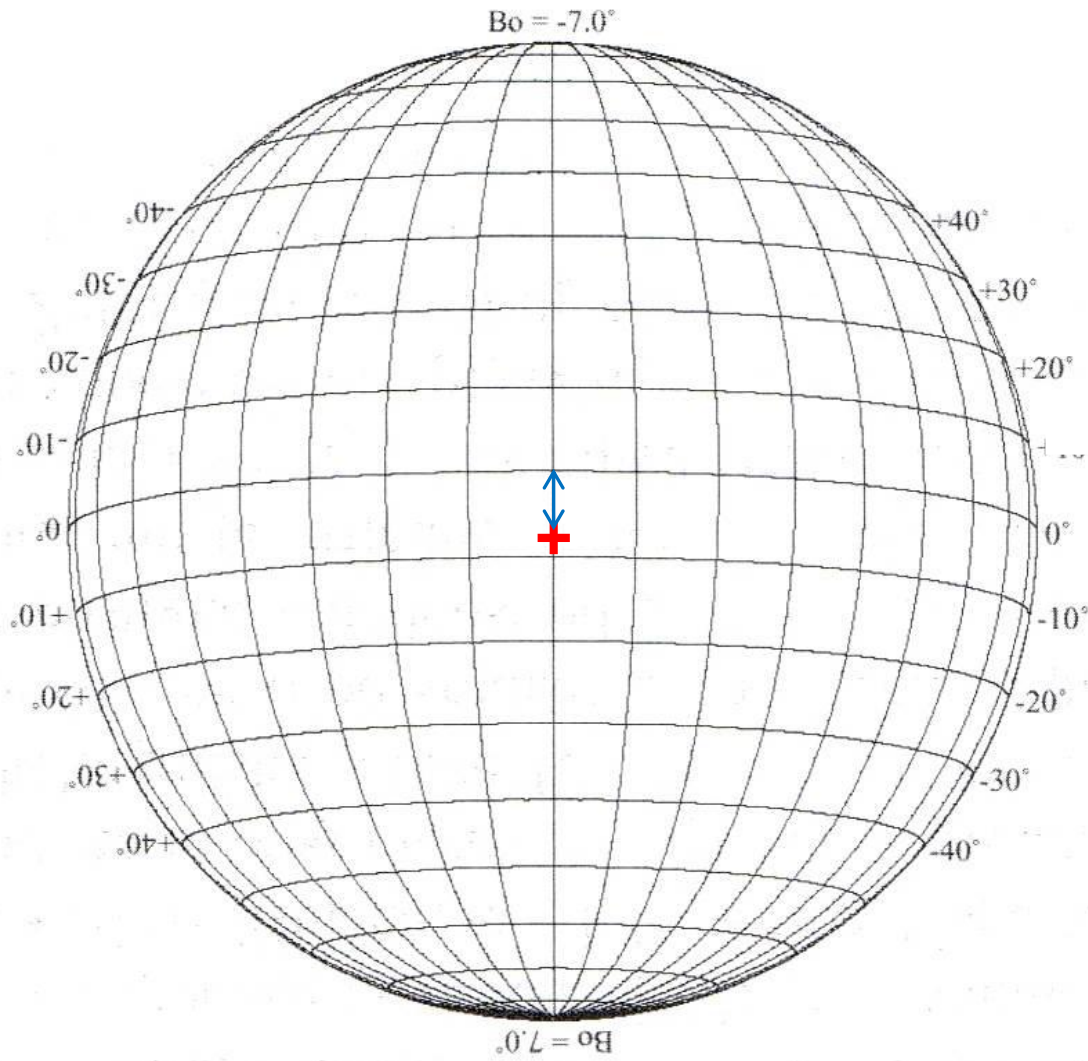


Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172 ,58

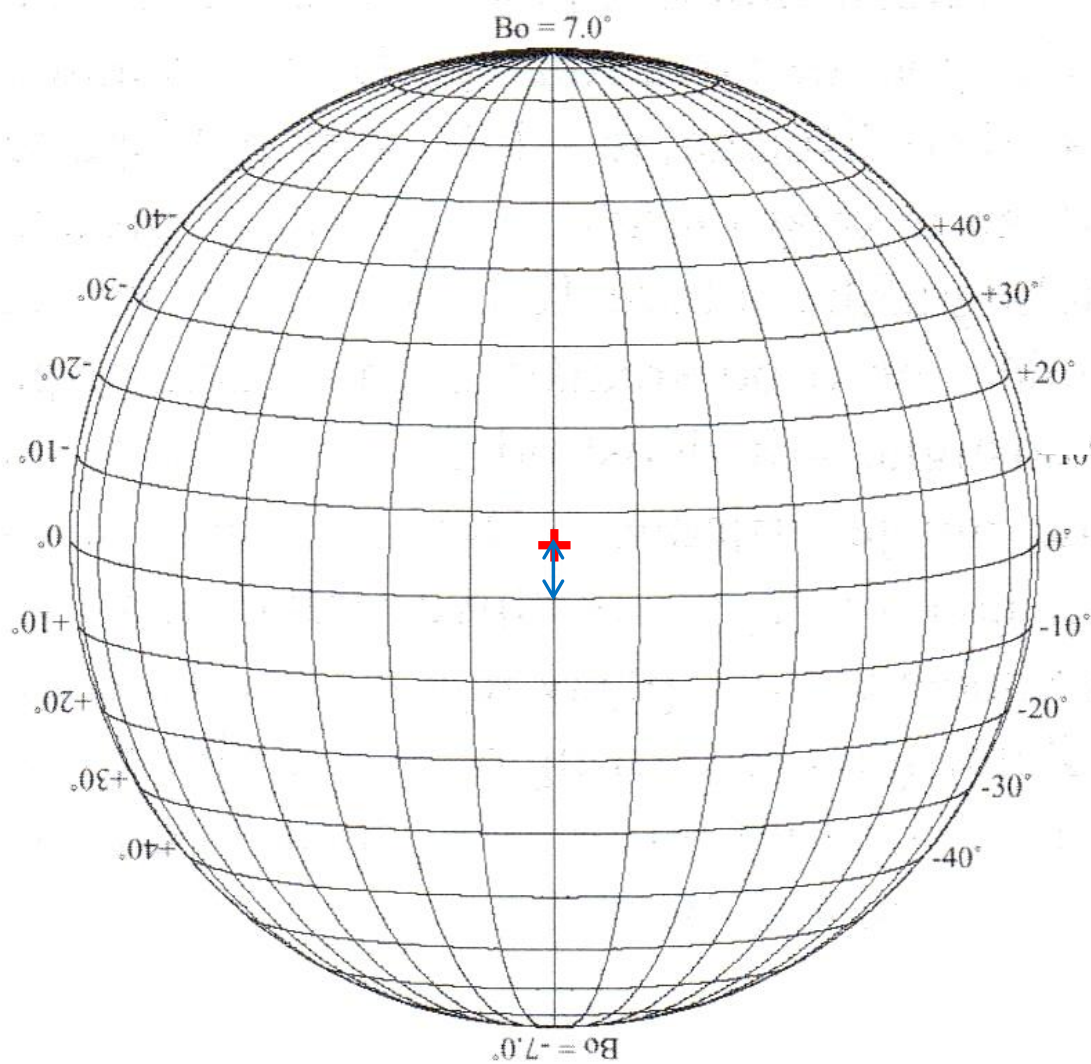
CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172 ,58

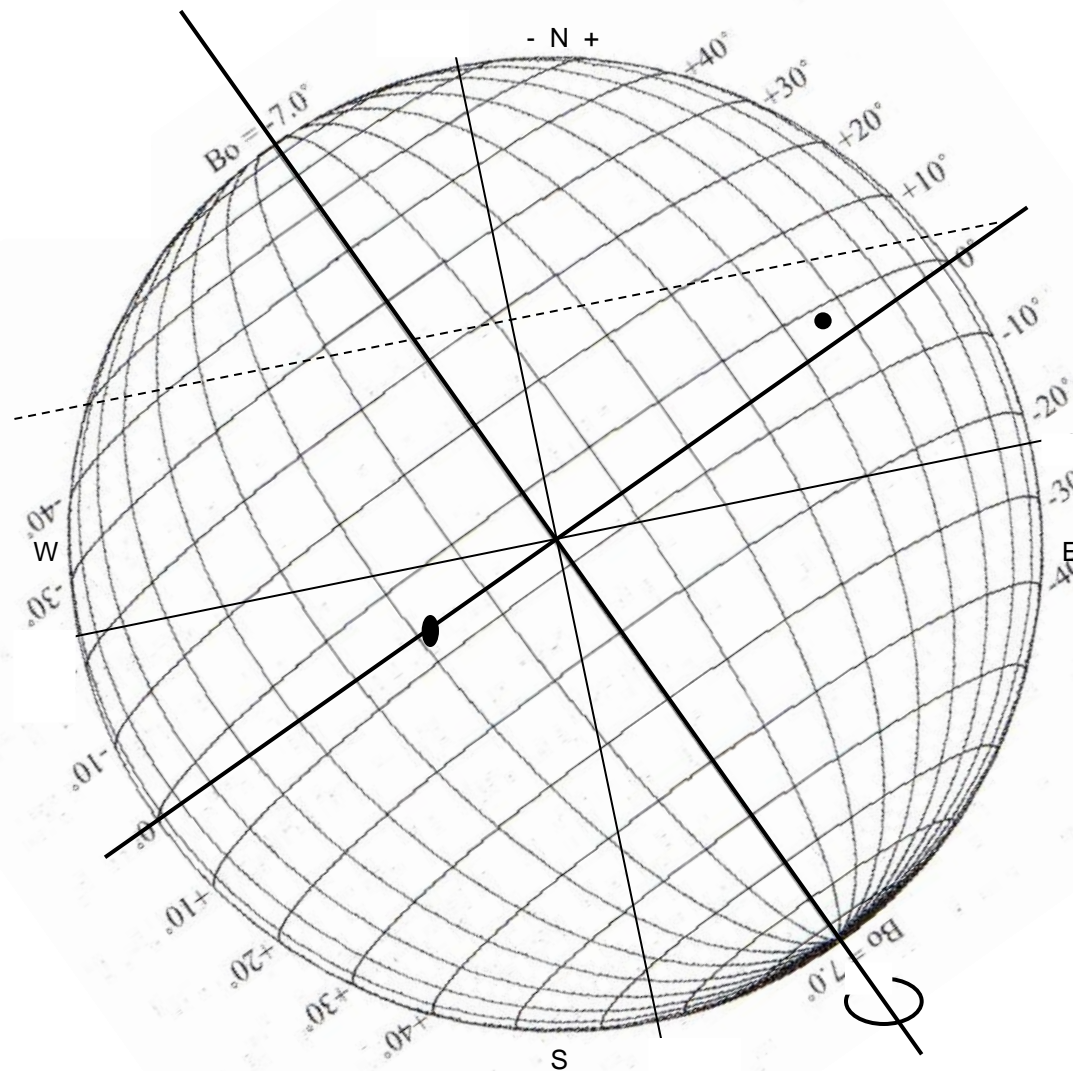


$B_0 = -7.0^\circ$



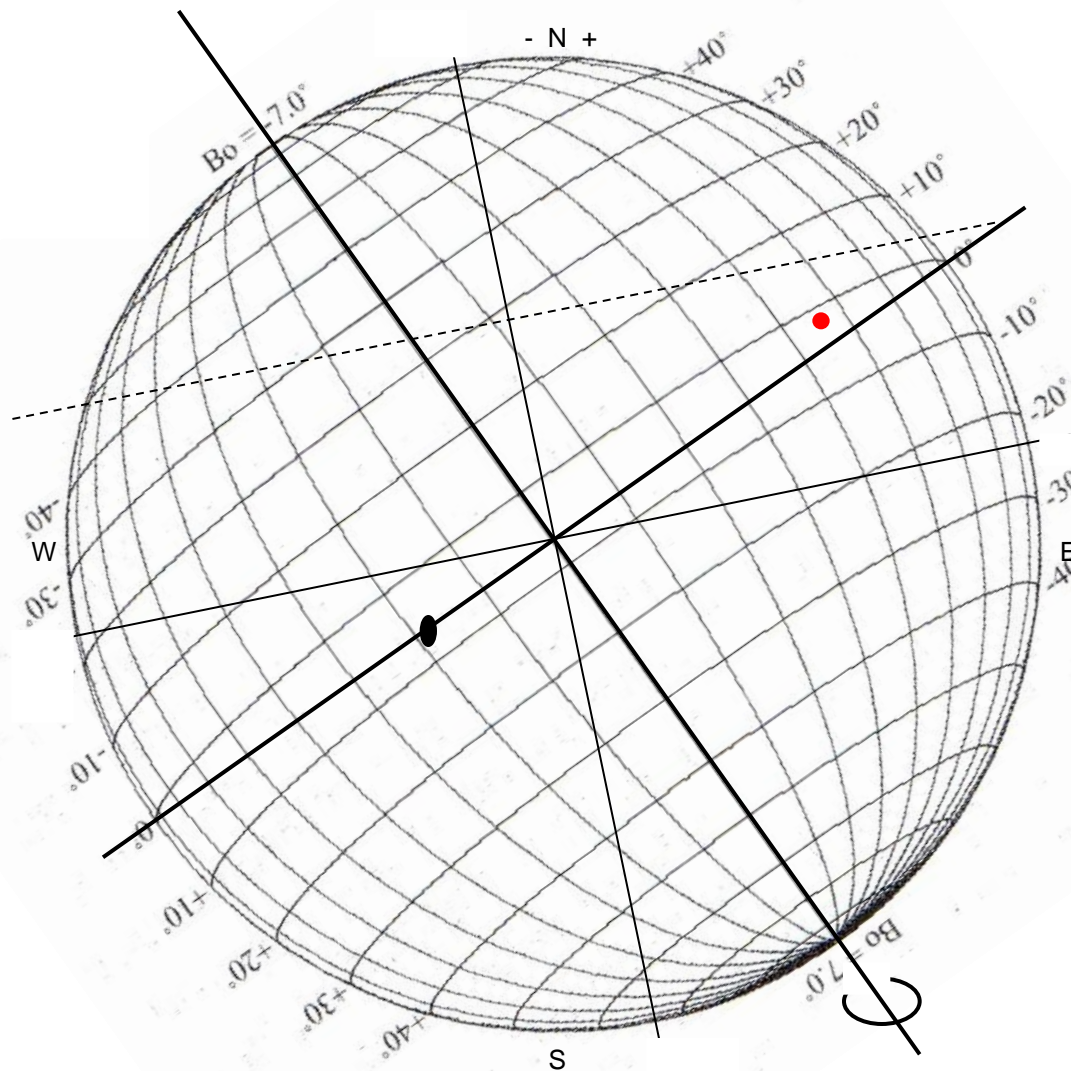
$$B_0 = +7.0^\circ$$

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. $\varnothing = 80$ mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



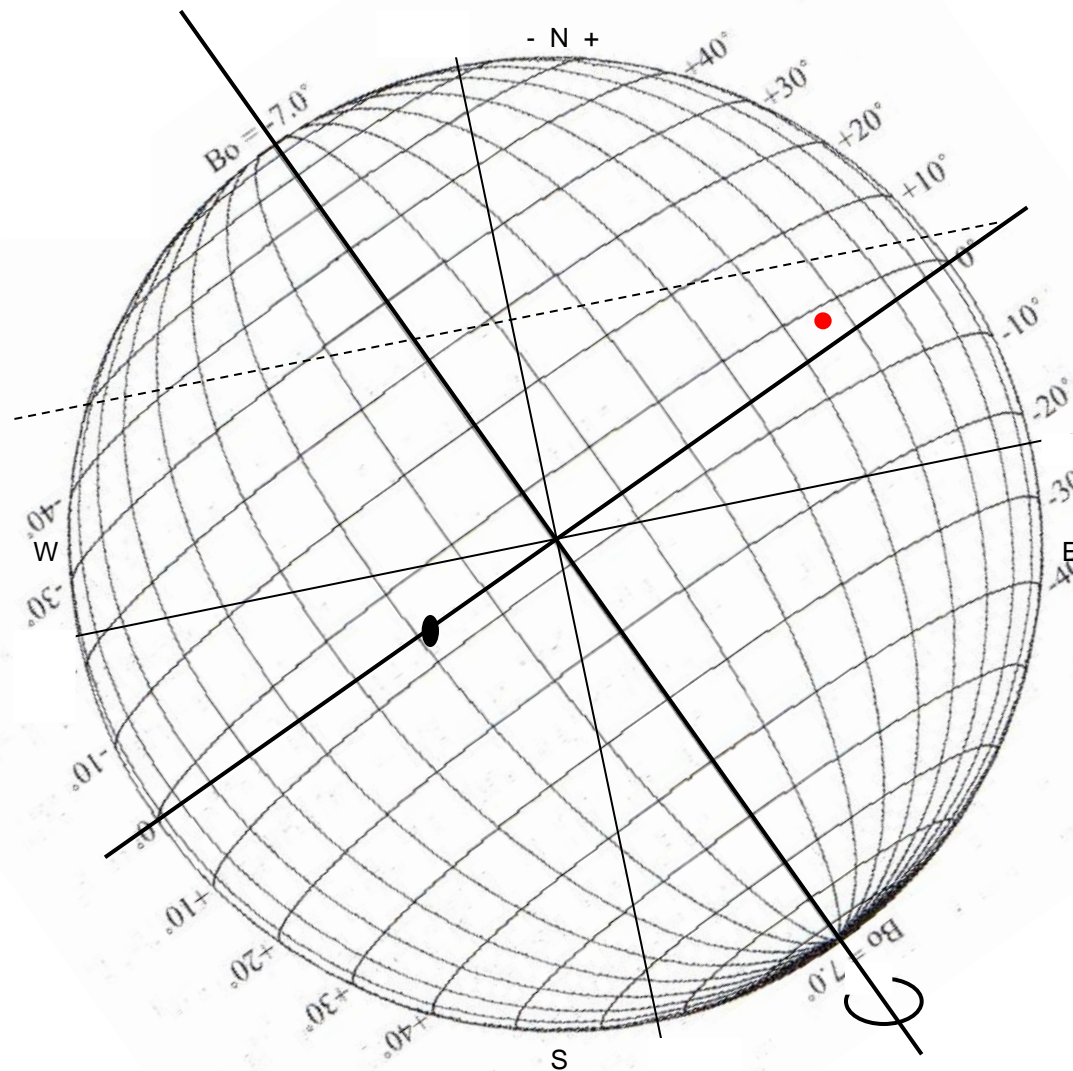
Primjedbe	P	B_0	L_0
	-23,24	-7,25	172,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



Primjedbe	P	B_0	L_0
	-23,24	-7,25	172,58

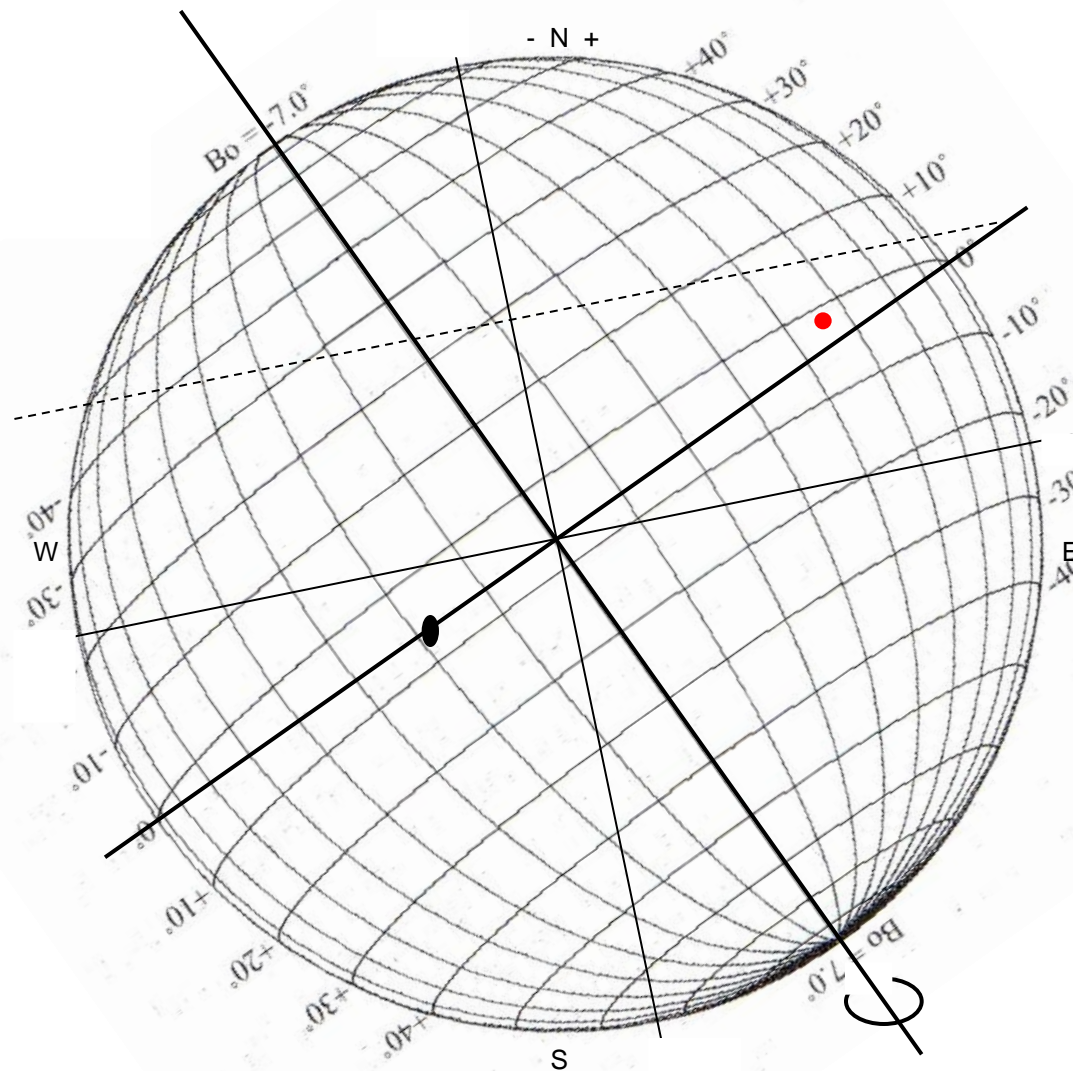
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11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



širina
 $\beta = -2^\circ$

Primjedbe	P	B_0	L_0
	-23,24	-7,25	172,58

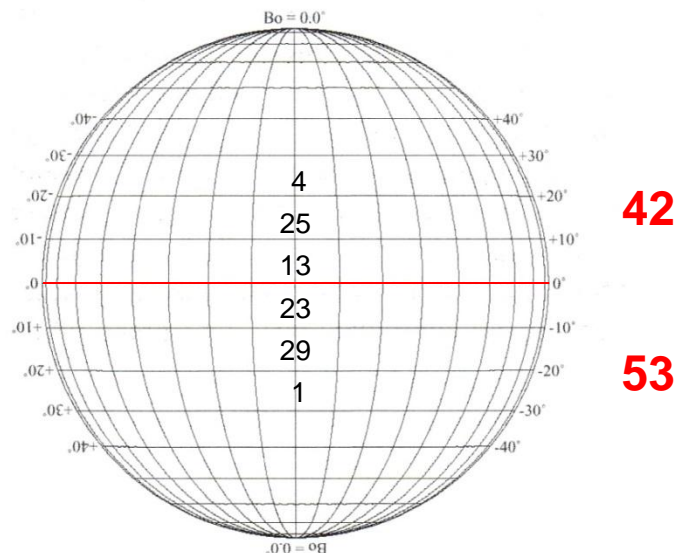
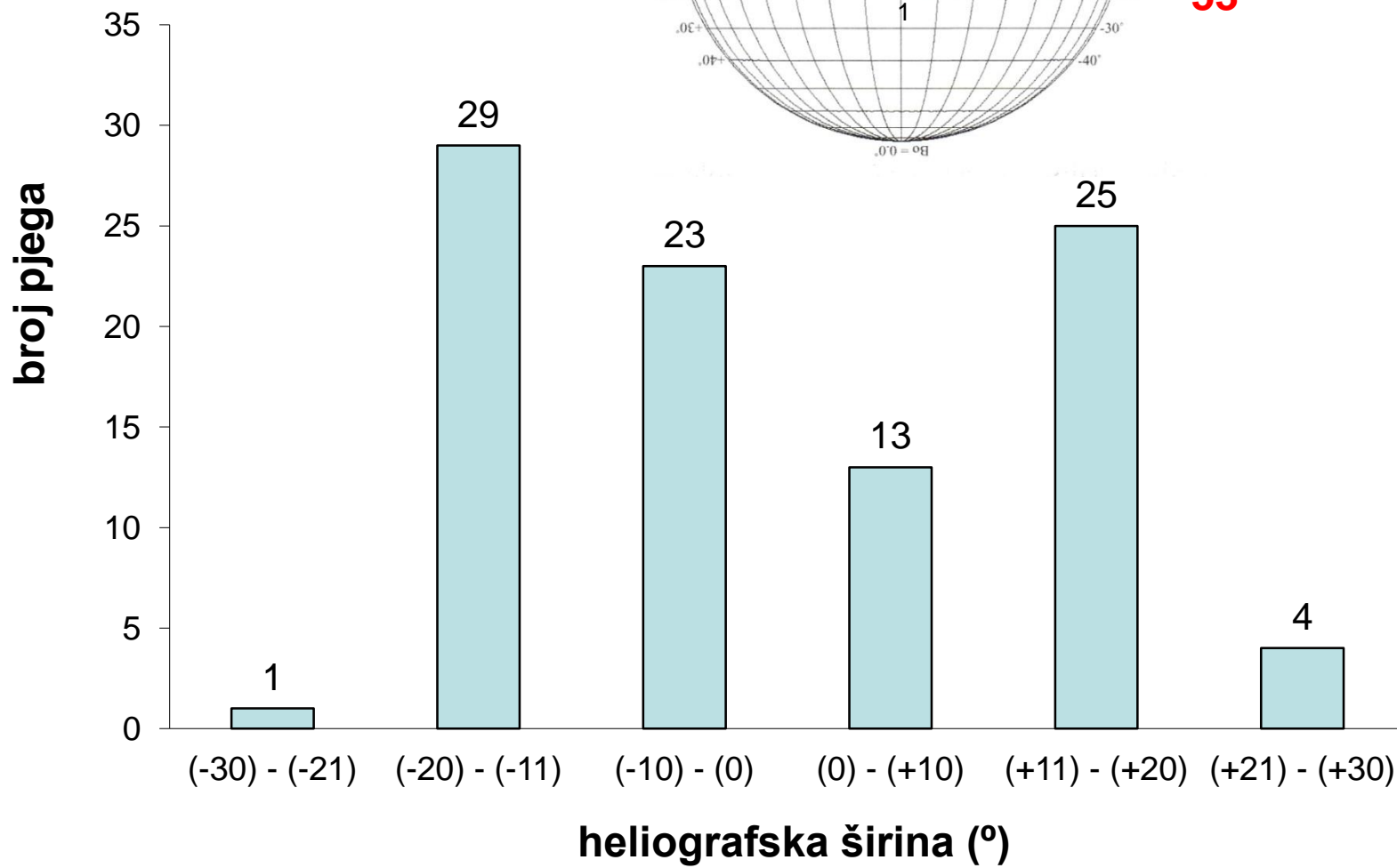
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11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



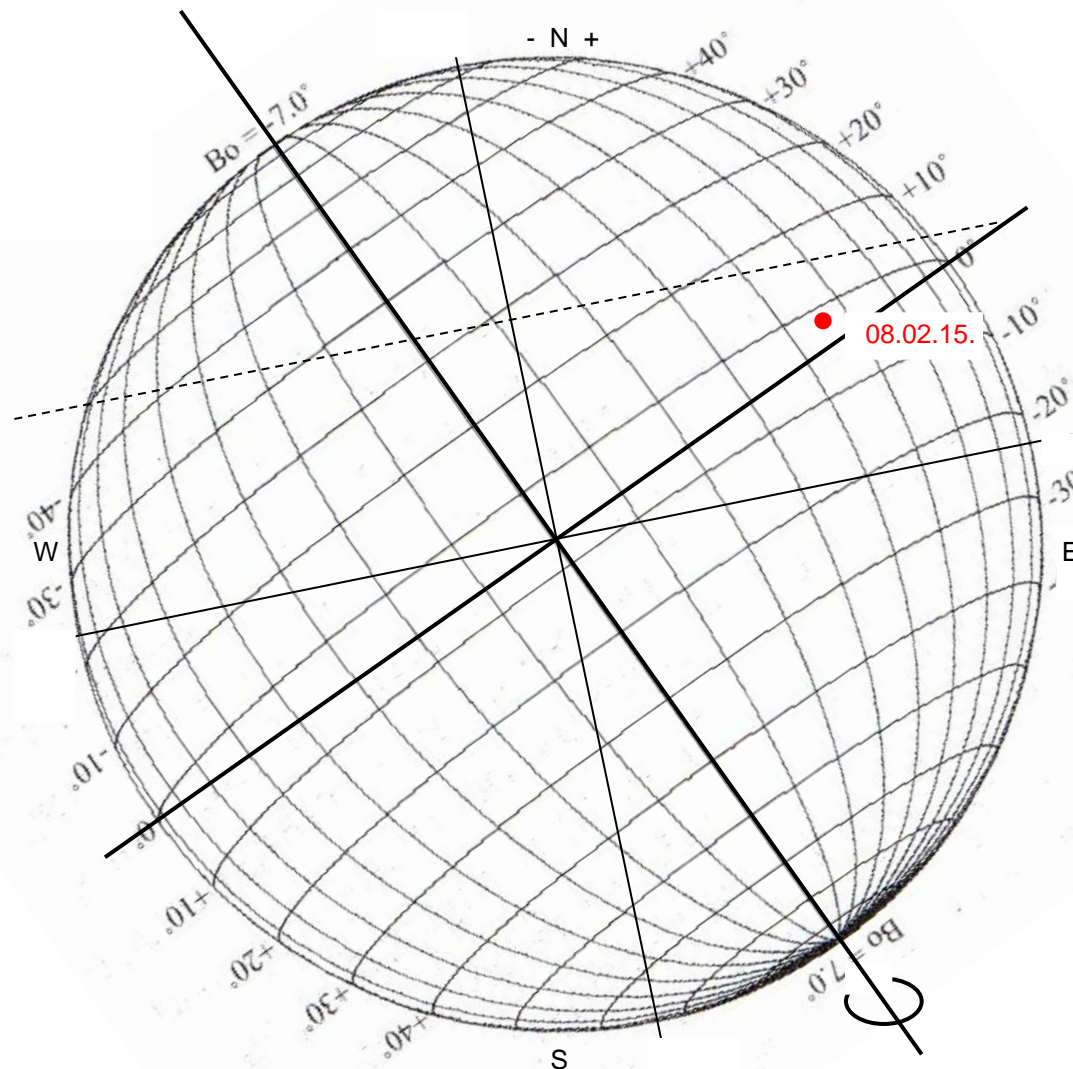
širina dužina
 $\beta = -2^\circ$, $l = -46^\circ$

Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172,58

- Period promatranja 72 dana
(11. prosinca 2014. do 20. veljače 2015.).
- 20 promatranja Sunca.
- Zapaženo 95 pjega.



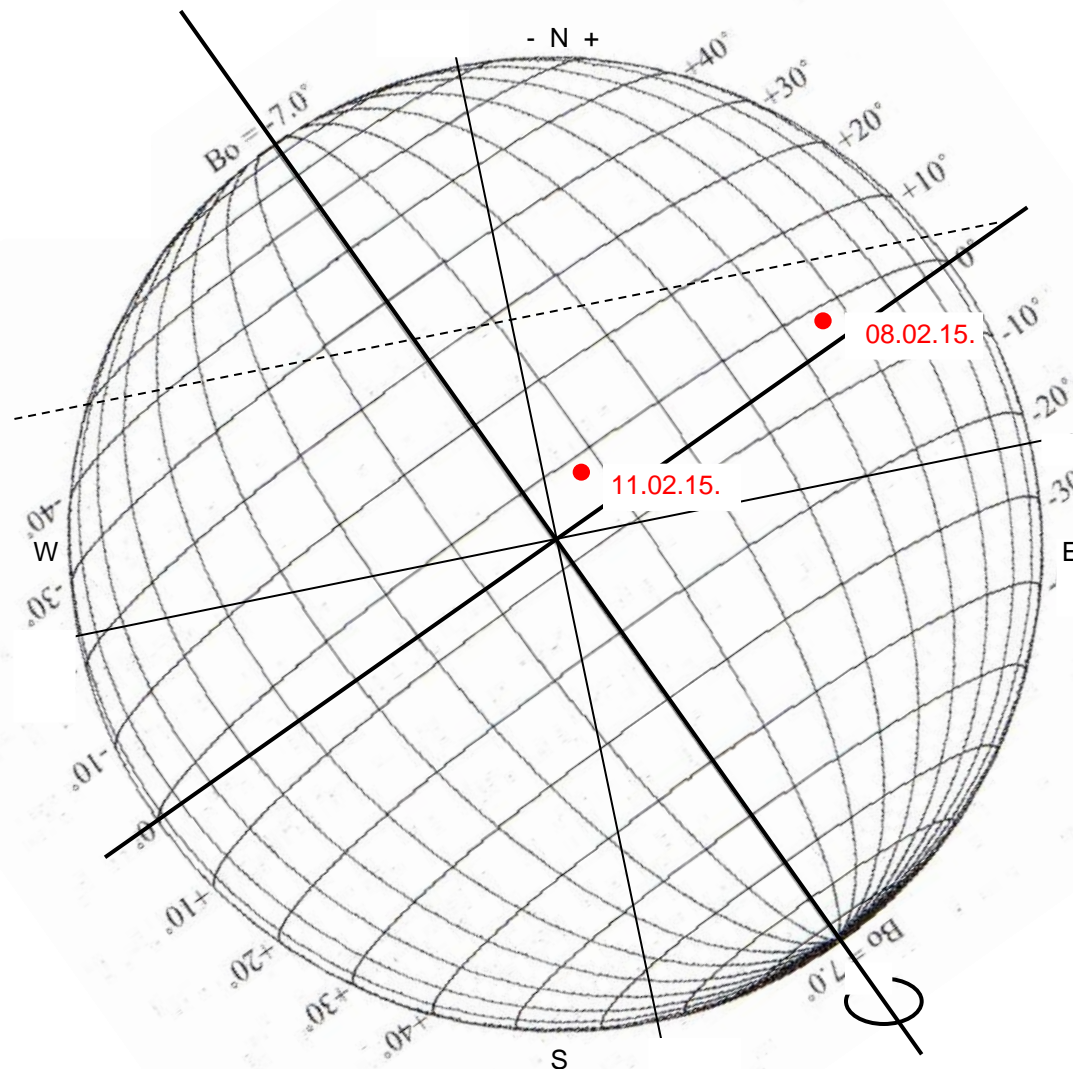
CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



širina dužina
 $\beta = -2^\circ$, $l = -46^\circ$

Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172 ,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	11.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica

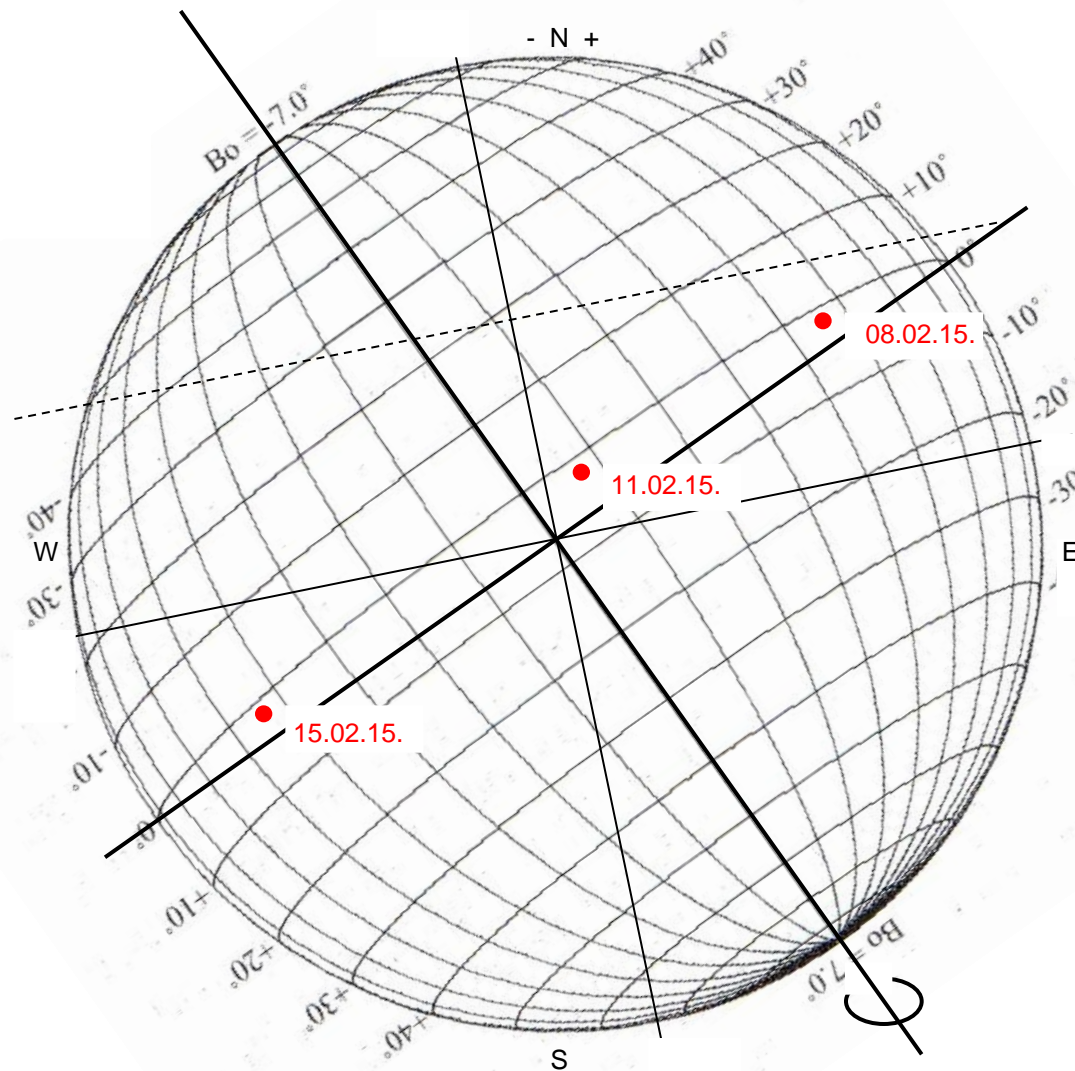


širina dužina
 $\beta = -2^\circ$, $l = -46^\circ$

$\beta = -2^\circ$, $l = -7^\circ$

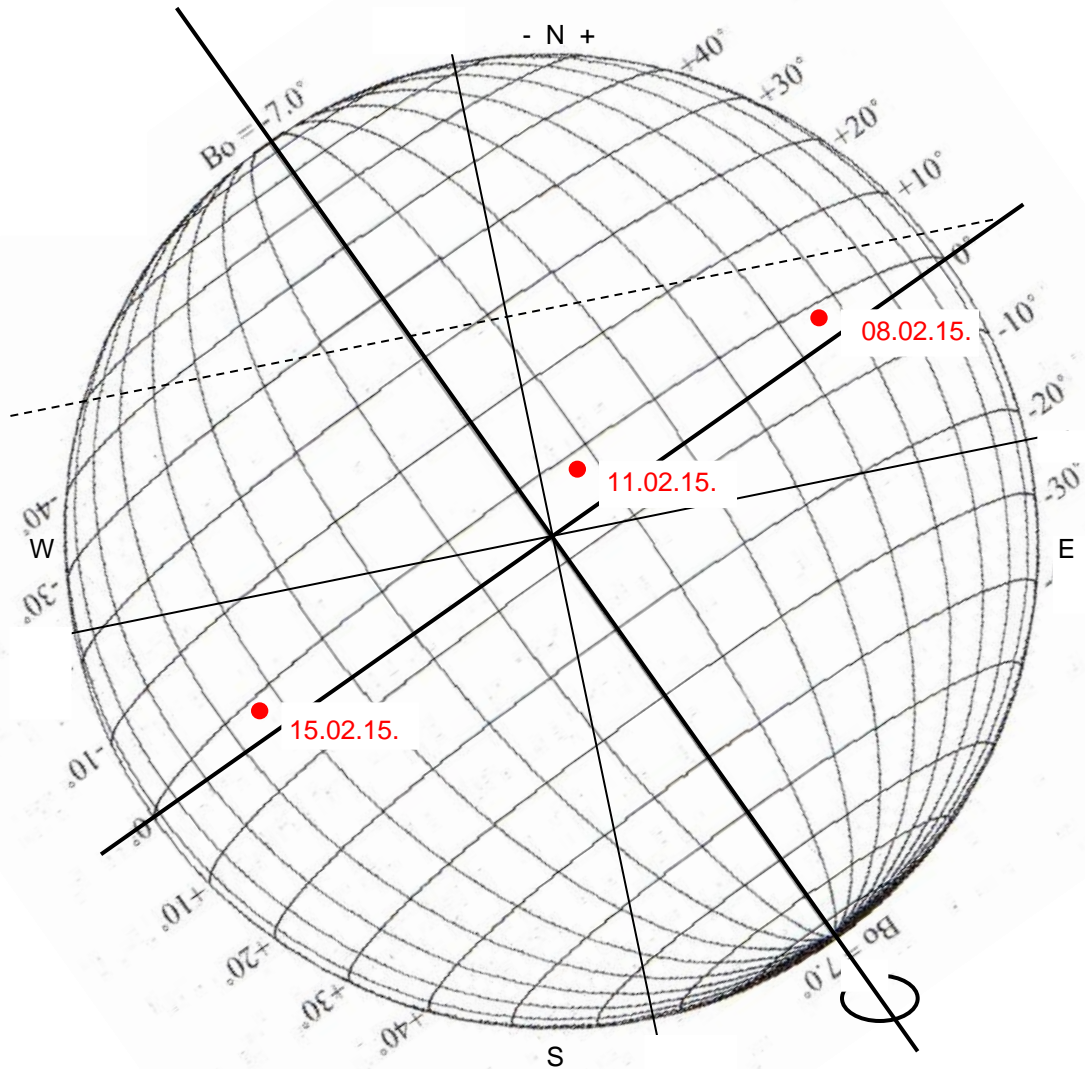
Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	15.02. 2015.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172,58

CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.03. 2013.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



širina dužina
 $\beta = -2^\circ$, $l = -46^\circ$

$\beta = -2^\circ$, $l = -7^\circ$

$\beta = -2^\circ$, $l = +44^\circ$

$+44^\circ - (-46^\circ) = 90^\circ$

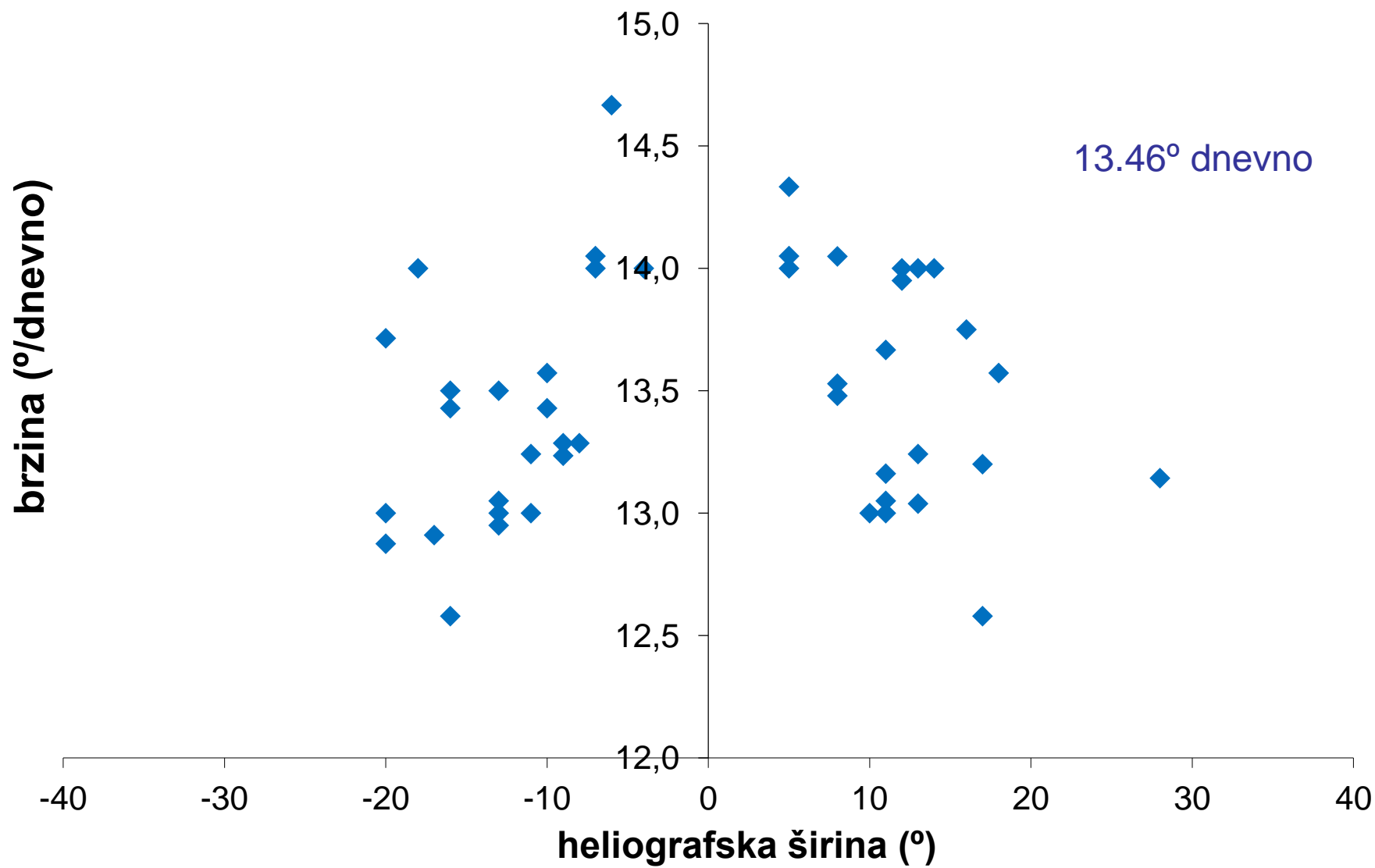
12.86° / dnevno

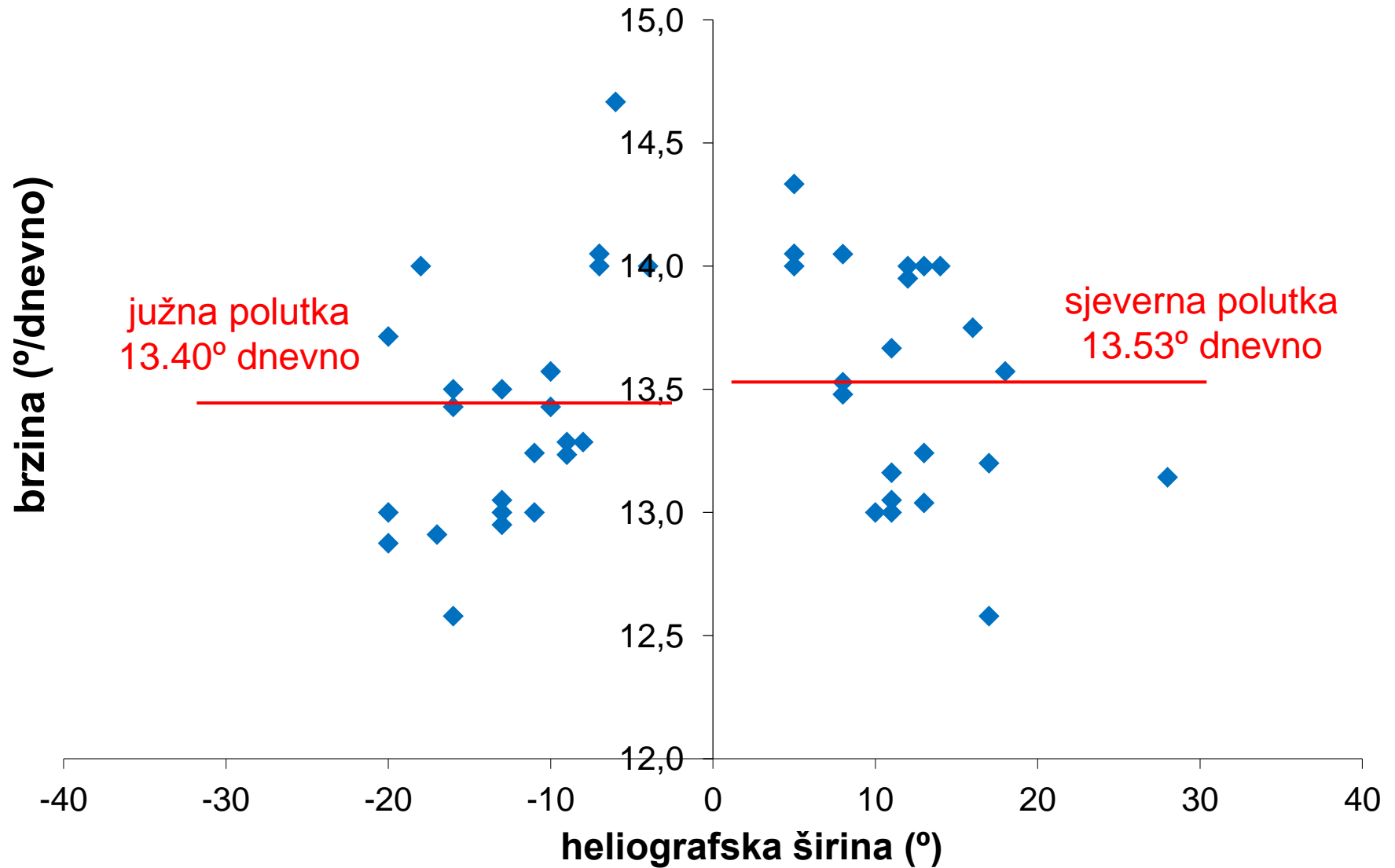
Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172,58

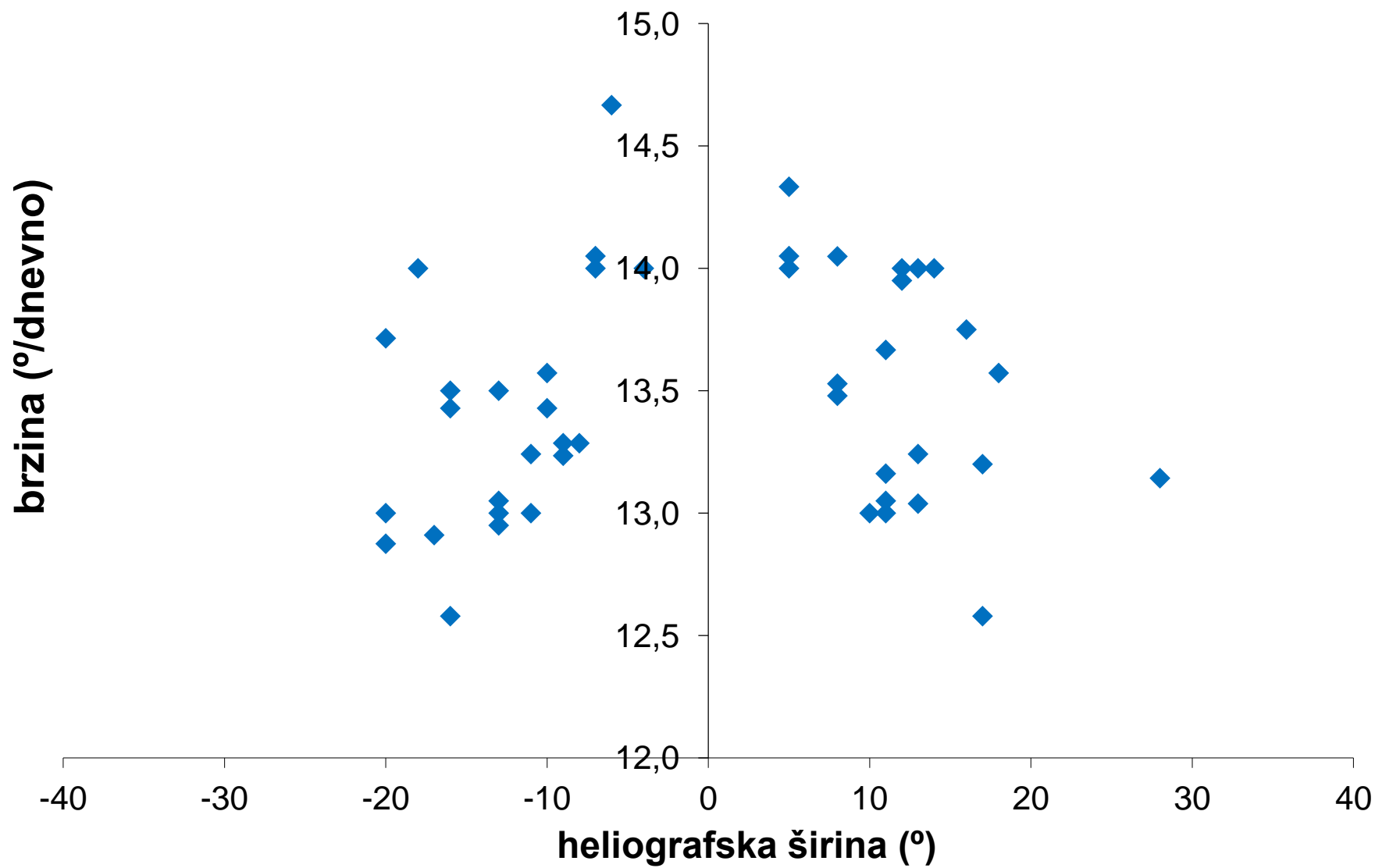
45 pjega praćeno kroz više dana.

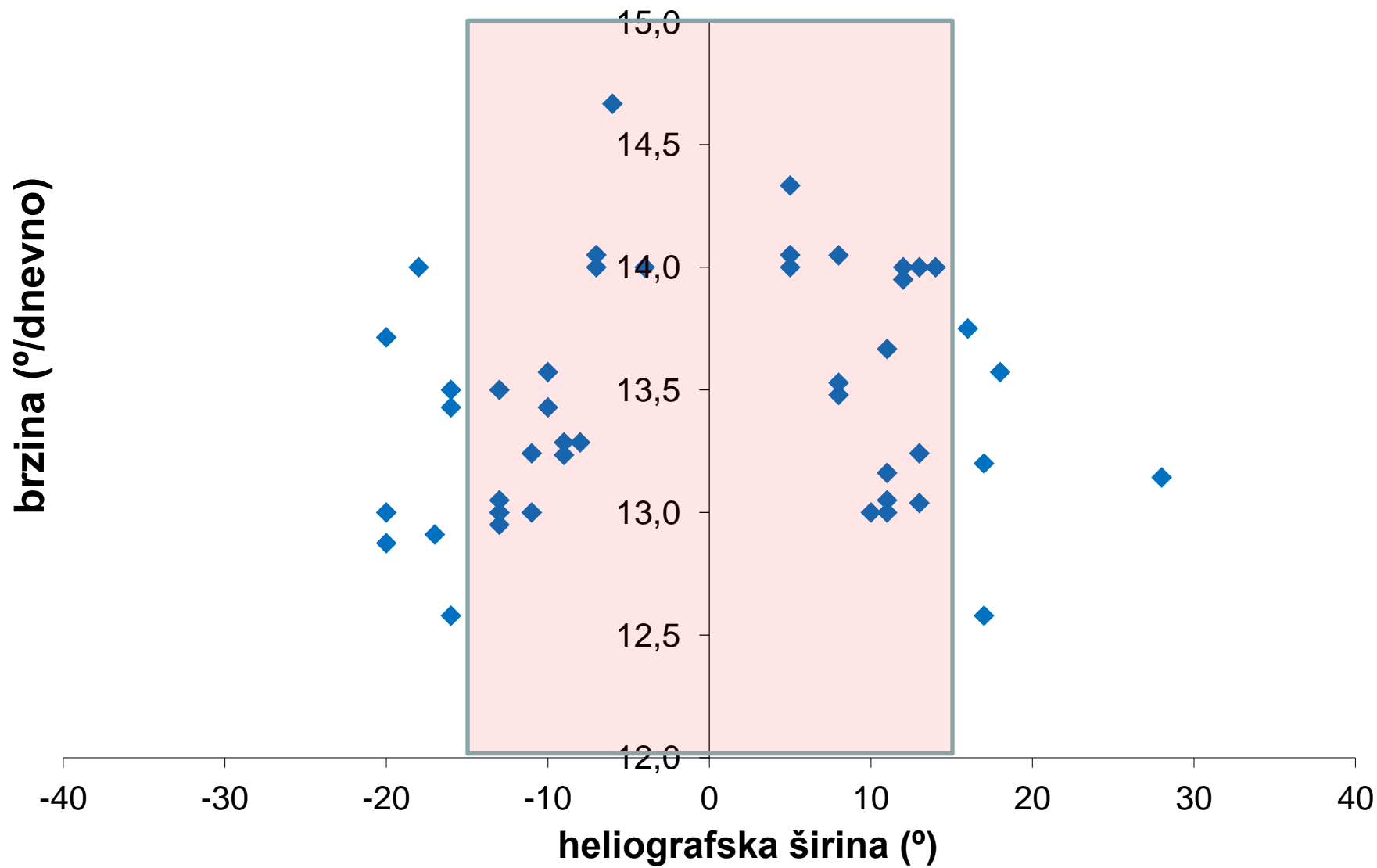
Pjege su se kretale prosječnom
brzinom od 13.46° dnevno.

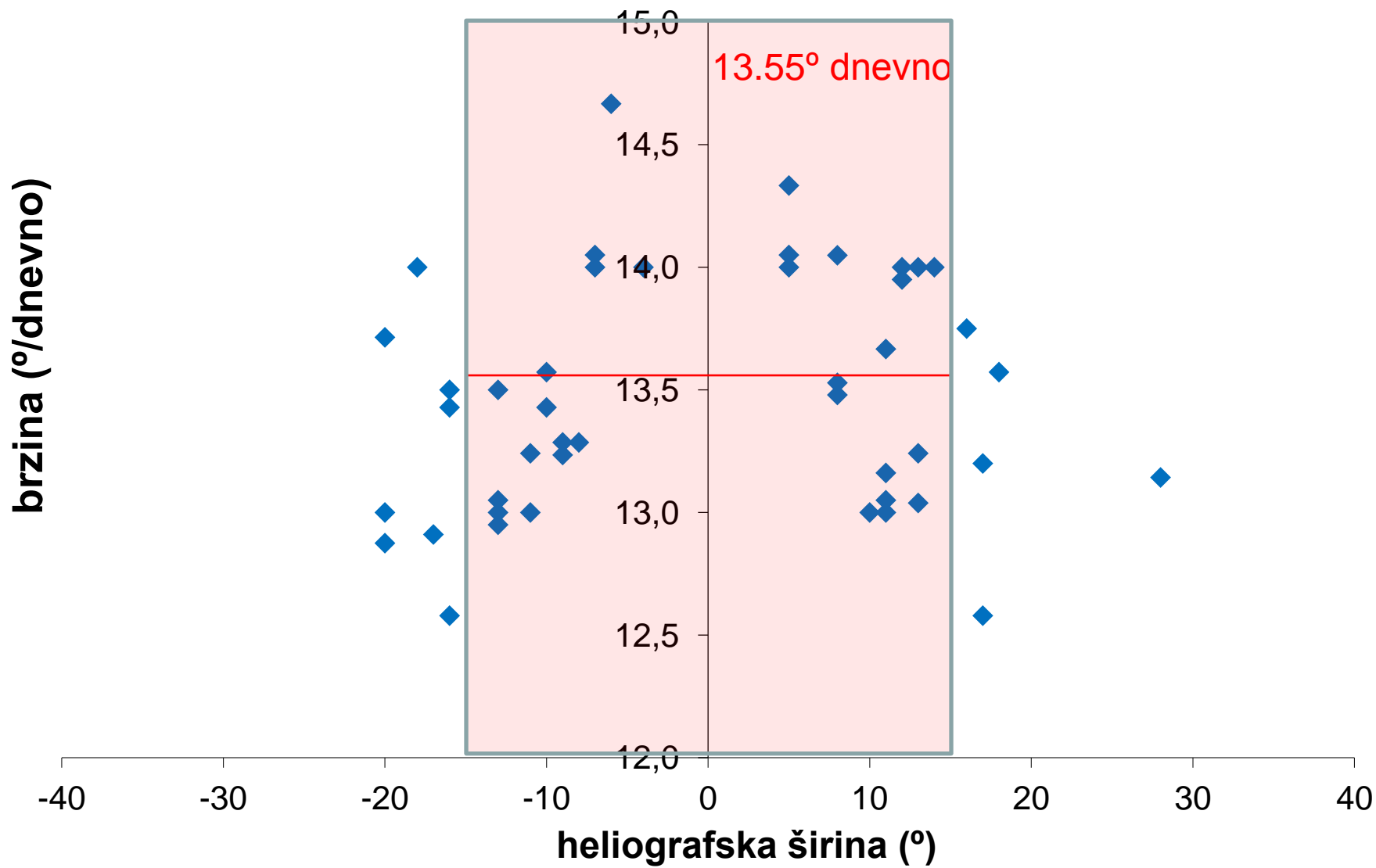
Prosječno vrijeme sinodičke rotacije
pjega bilo je 26.74 dana.

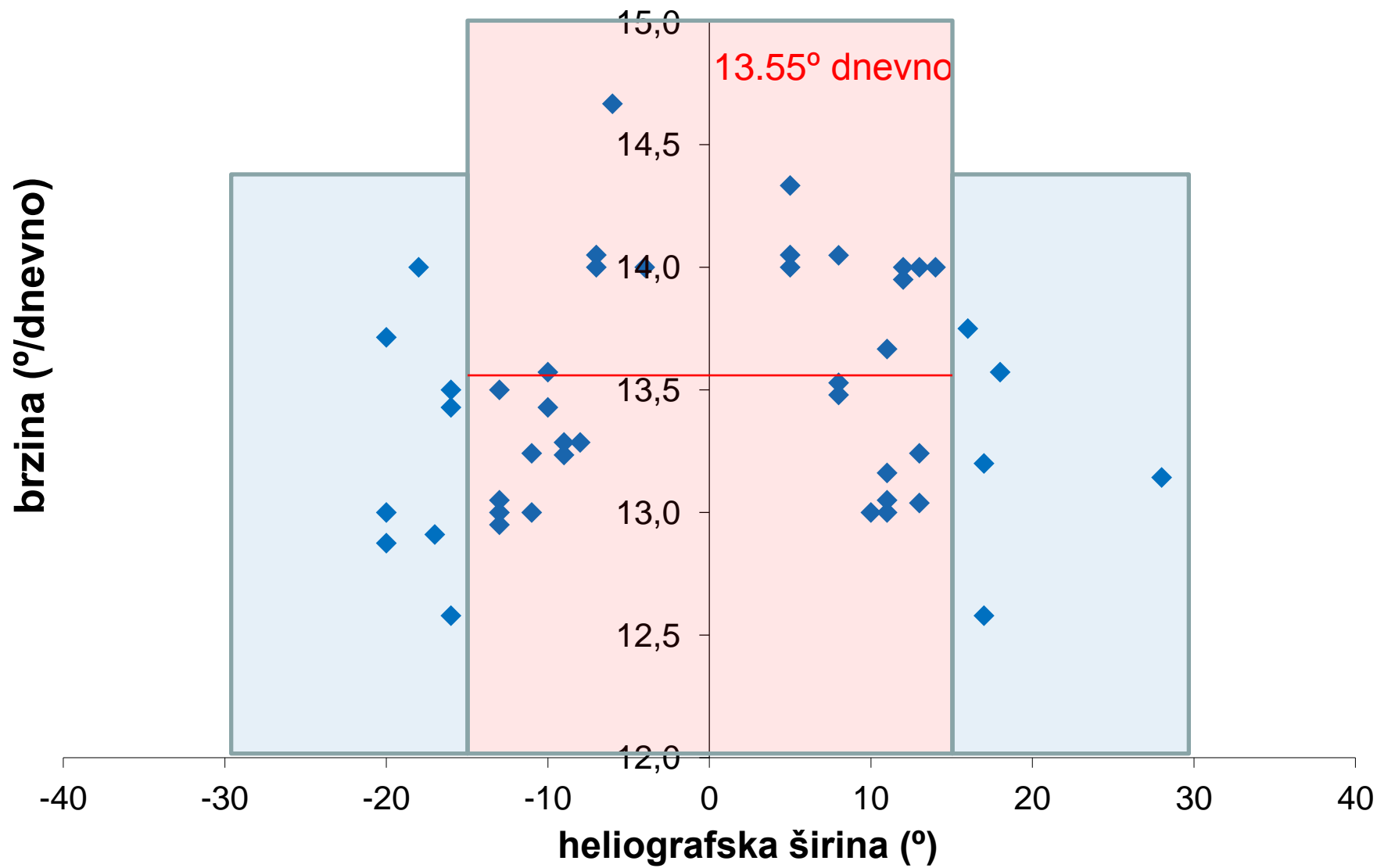


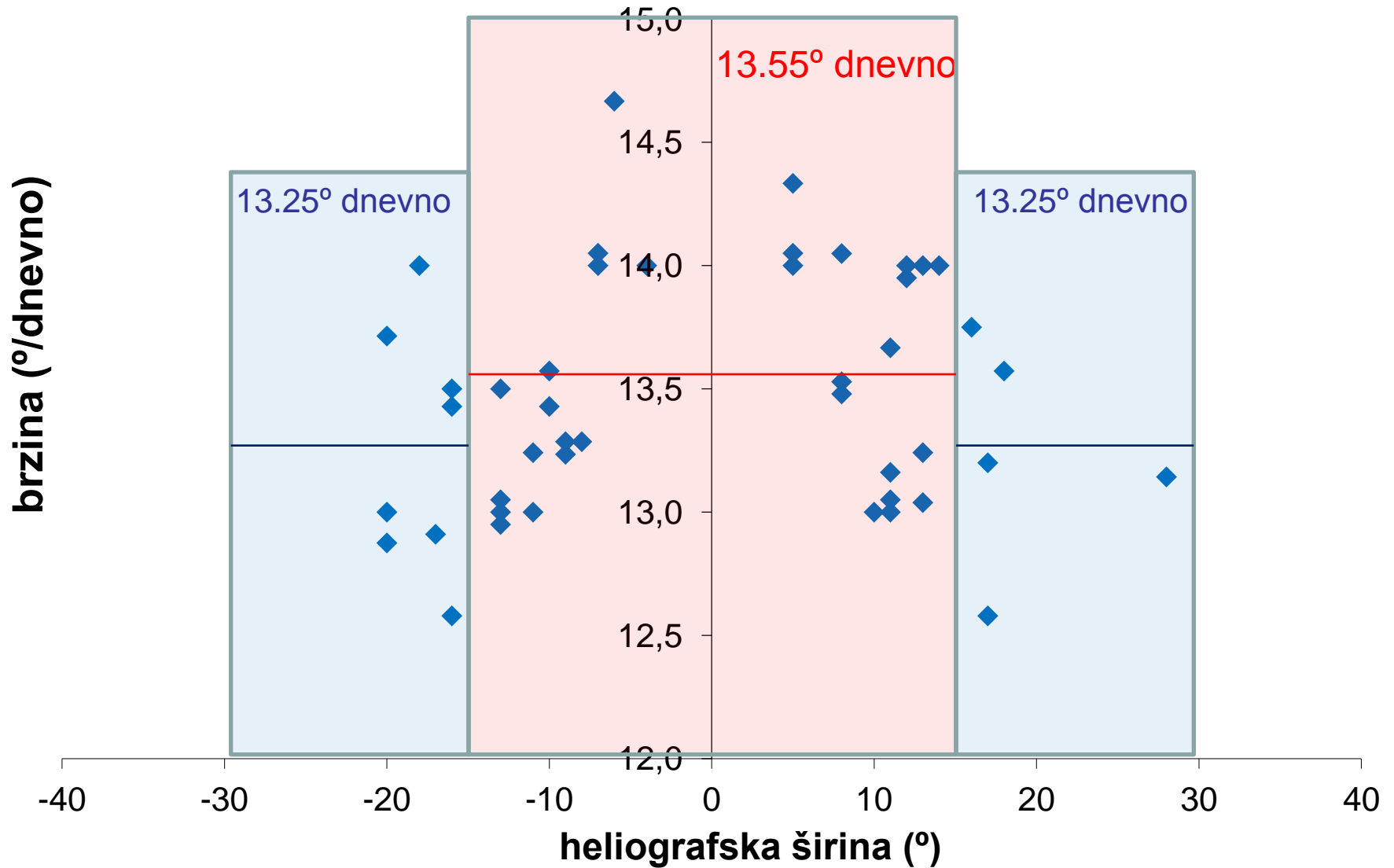












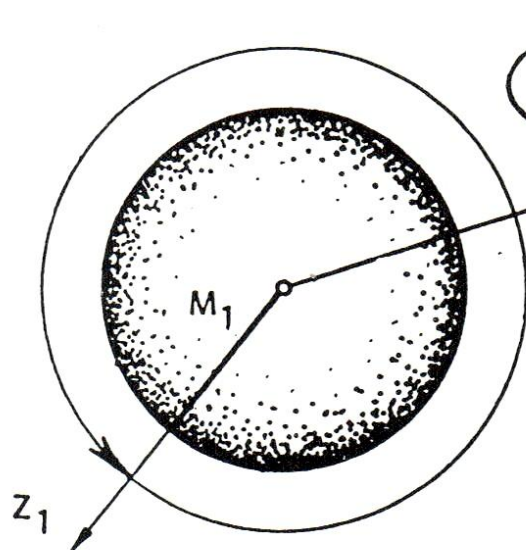
ZAKLJUČCI

1. Tijekom mog praćenja južna polutka Sunca imala je veću aktivnost od sjeverne.
2. Pjege su se na obje polutke najčešće nalazile između 10° i 20° heliografske širine.
3. Prosječna brzina rotacije Sunca u mom istraživanju je 13.46° dnevno.
4. Sjeverna i južna polutka rotiraju istom brzinom.
5. Područje oko Sunčevog ekvatora rotira brže od područja dalje od ekvatora.

Hvala na pažnji!

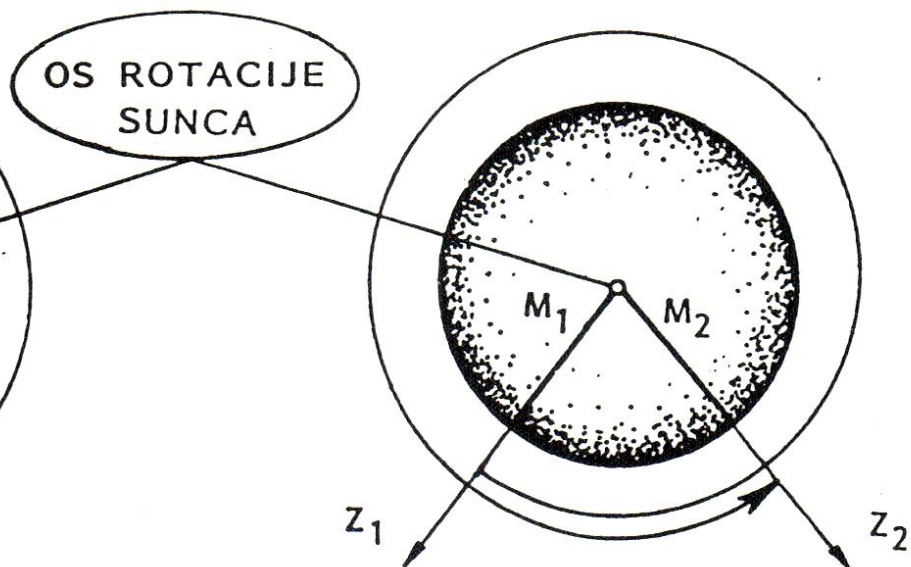
vbranica@gmail.com

VIDLJIVOST SUNCA
IZ POLOŽAJA z_1



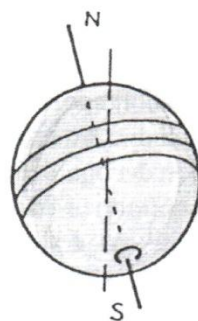
ZA OKO 25 DANA SUNCE SE
JEDNOM OKRENE OKO OSI
(ZA 360°)

VIDLJIVOST SUNCA
IZ POLOŽAJA z_2

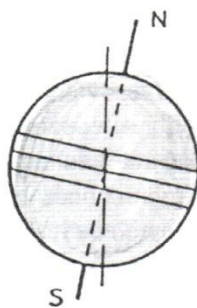


ZA OKO 27 DANA SUNCE SE
JEDNOM OKRENE OKO OSI
ROTACIJE ZA PROMATRAČA
NA ZEMLJI
(CARRINGTONOVA ROTACIJA)

VIDI SE
JUŽNI POL

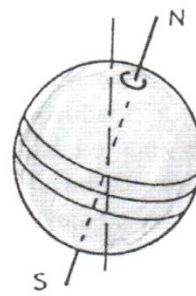


7. III.

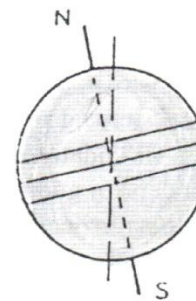


6. VI.

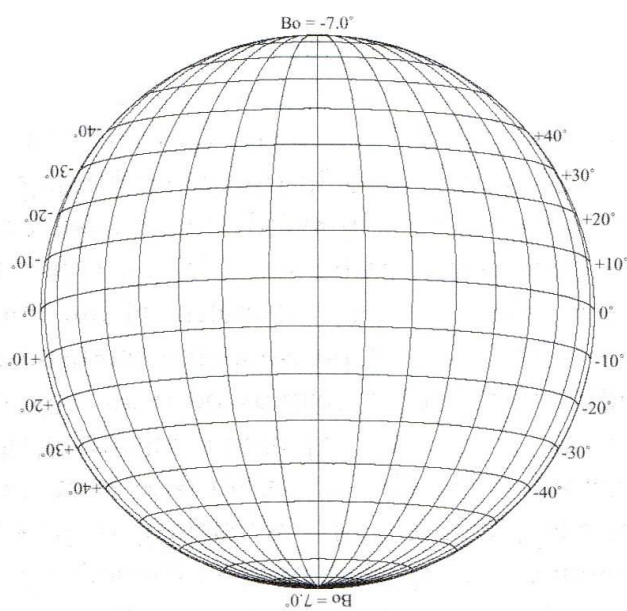
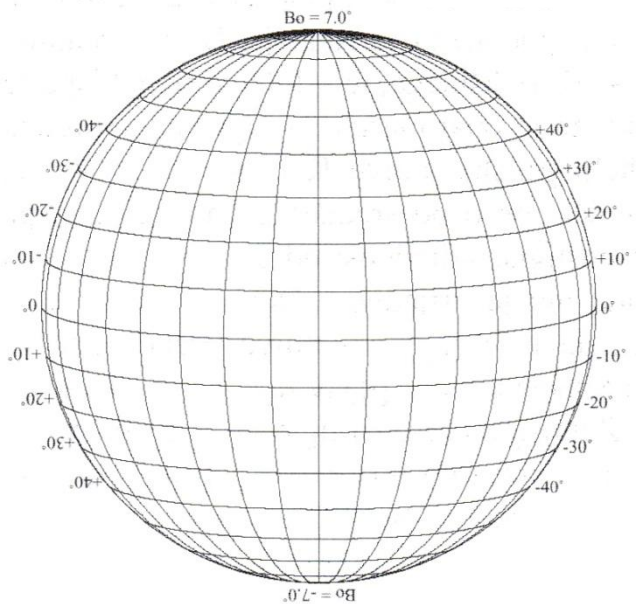
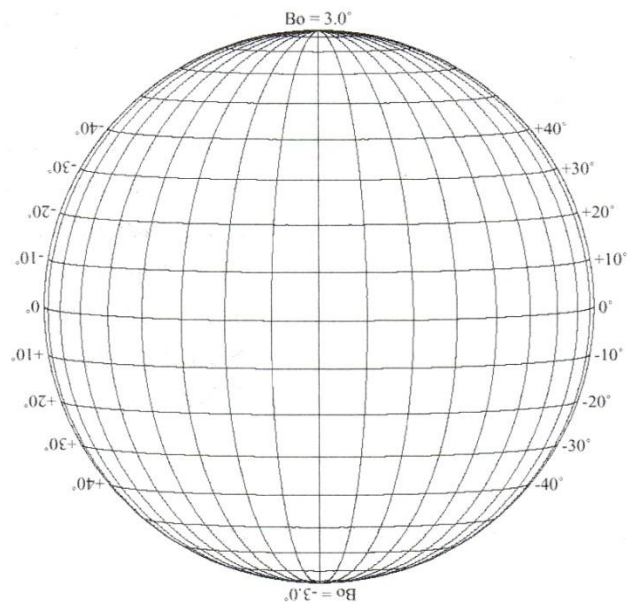
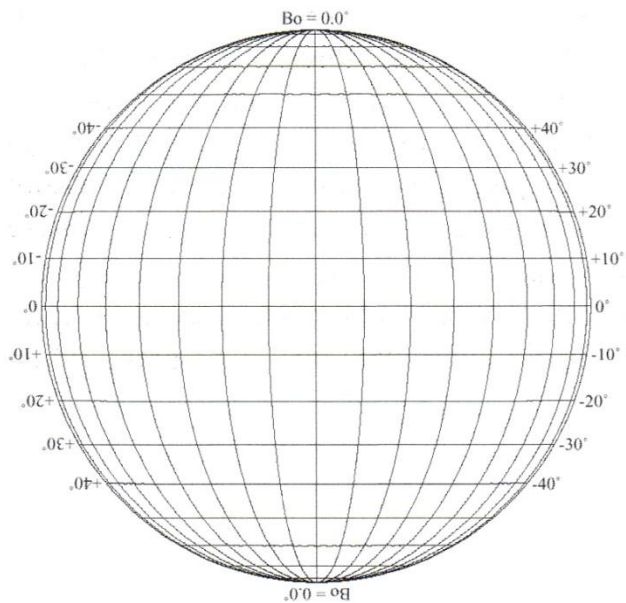
VIDI SE
SJEVERNI POL



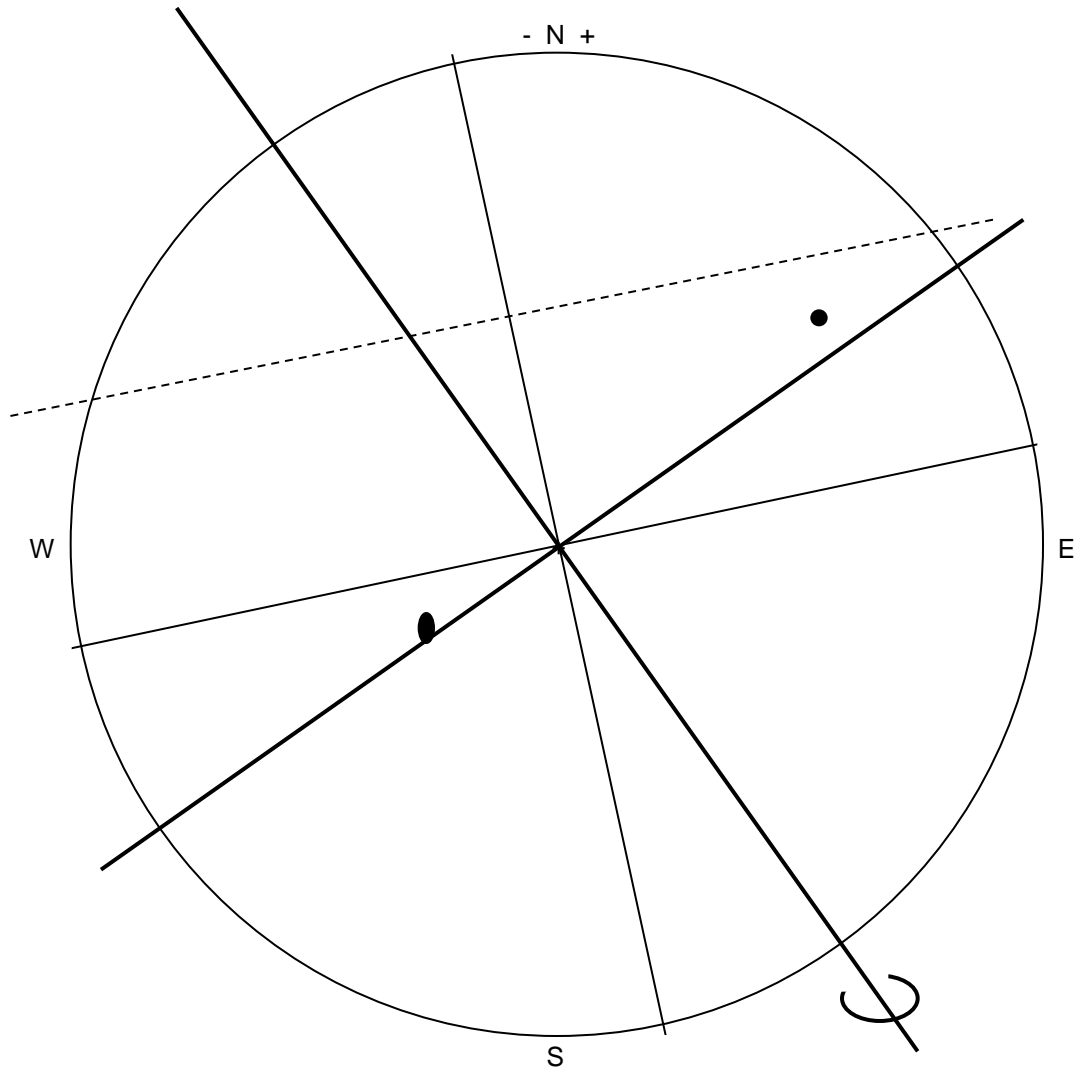
8. IX.



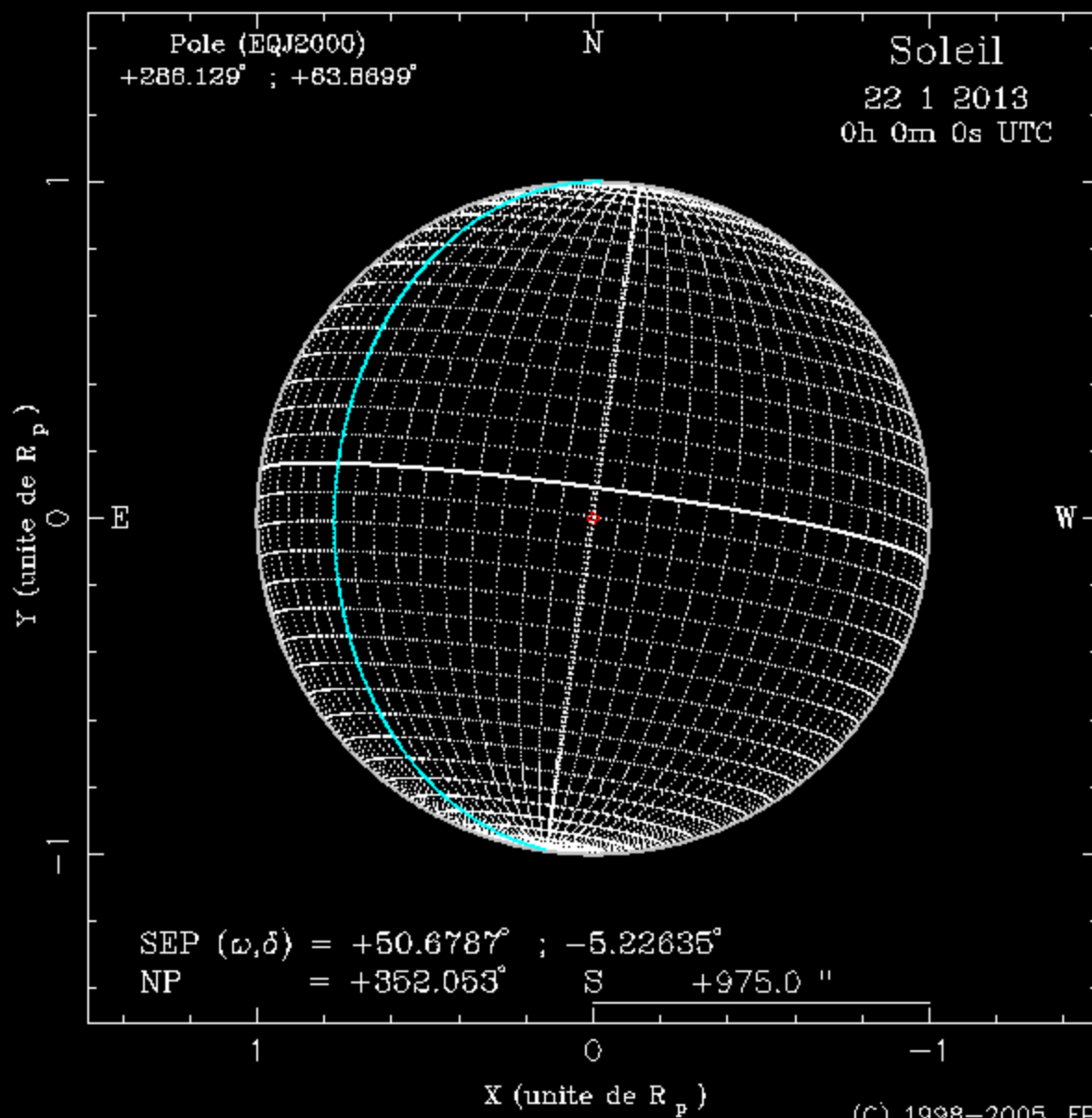
6. XII.



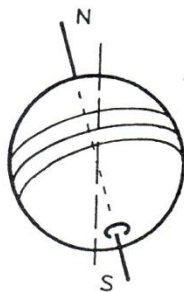
CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
11	08.03. 2013.	10:00	KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



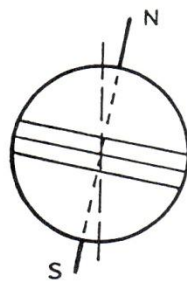
Primjedbe	P	B ₀	L ₀
	-23,24	-7,25	172 ,58



VIDI SE
JUŽNI POL

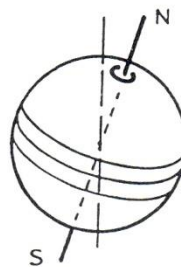


7.III

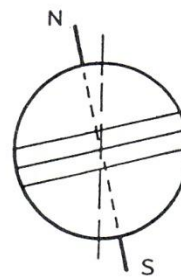


6.VI

VIDI SE
SJEVERNI POL



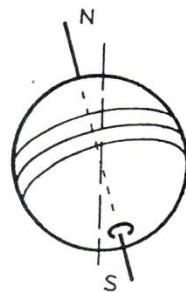
8.IX



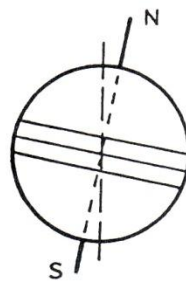
6.XII

Slika 31.

VIDI SE
JUŽNI POL



7.III

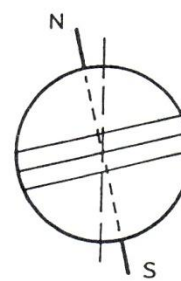


6.VI

VIDI SE
SJEVERNI POL

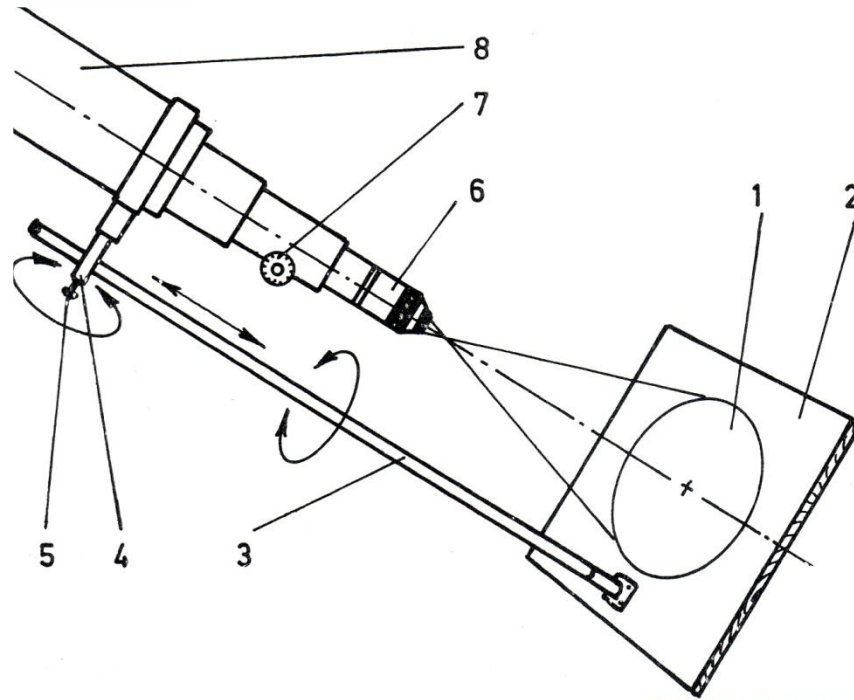


8.IX

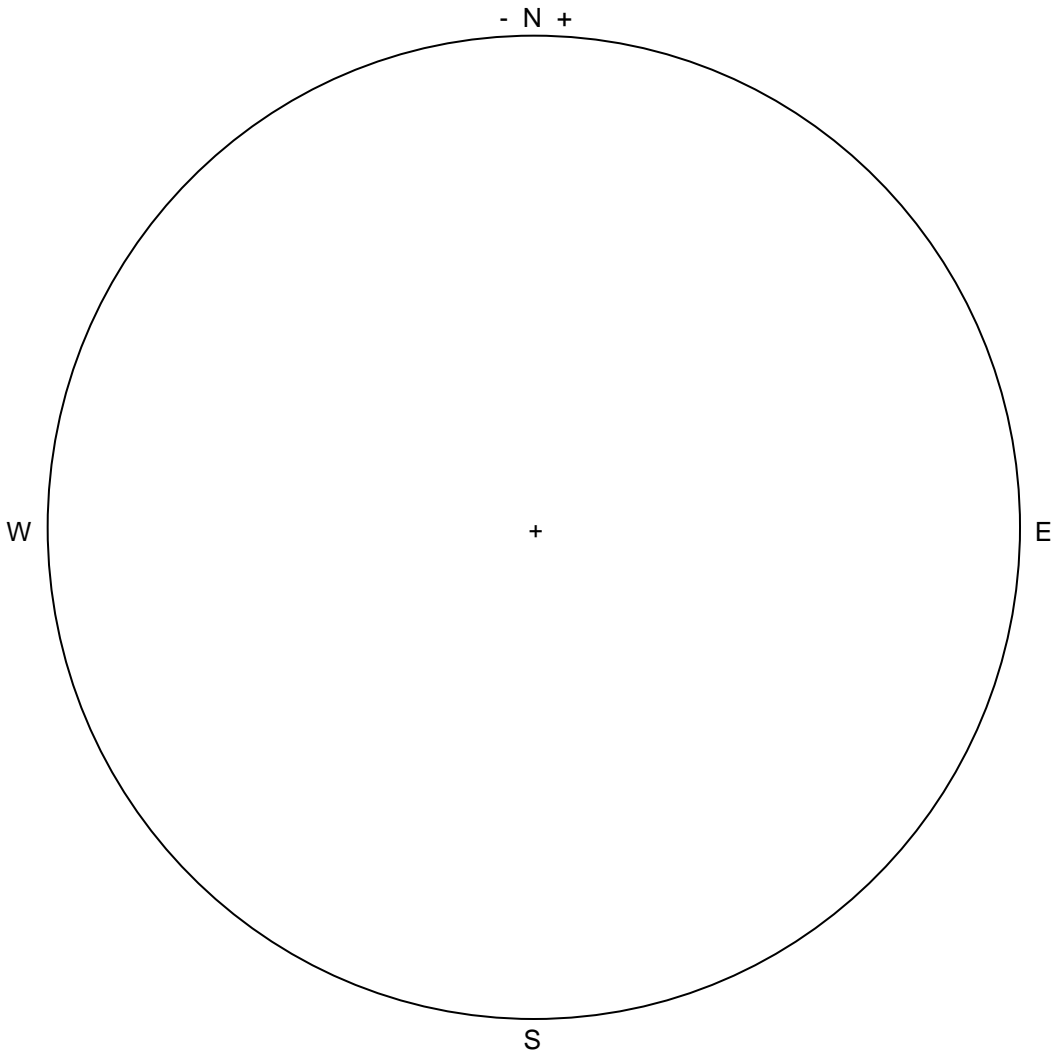


6.XII

Slika 31.



CRTEŽ BROJ	DATUM	VRIJEME U.T.	INSTRUMENT	MJESTO PROMATRANJA	PROMATRAČ
			KONUS ref. Ø = 80 mm F = 1000 mm	Podvršje 32, Zagreb	Vilim Branica



Primjedbe	P	B ₀	L ₀
	,	,	,

Slika 29.

