

Mt. Wilson vs. Crimea
Sunspot sketch comparing
from 1994 to 2013

概要

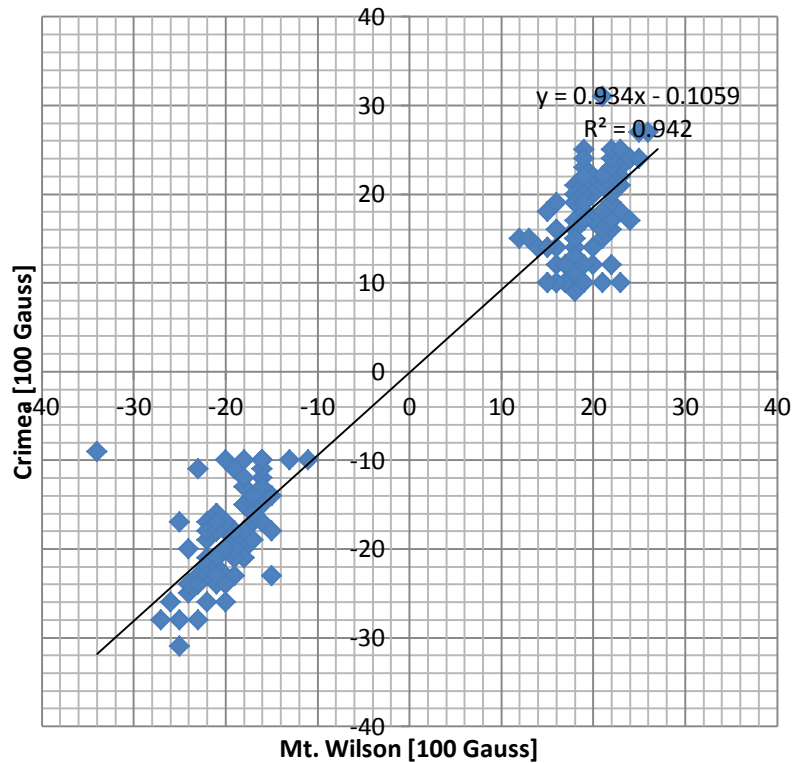
- Mt. WilsonとCrimeaの黒点磁場データの値を二種類のサンプリングで比較
 1. 1年1枚(1994年～2013年、計20セット)の黒点スケッチ中の対応する磁場強度同士をすべて比較
 2. 1994年1月～1999年12月、2002年4月～6月、2013年4月～10月の期間中で、Crimeaで3000G以上の磁場強度を示した黒点について比較
- 結果、Mt. Wilsonのデータでは2600G程度が上限であることが判明
 - 調べた範囲では唯一、2002年5月16日～18日の3日間のみ、-3000Gを記録(5月19日には-2900G)

データ

- Mt. Wilson
 - <ftp://howard.astro.ucla.edu/pub/obs/drawings/>
 - determine polarities and fields strengths by directly measuring the Zeeman splitting of the 5250 line.
- Crimea
 - <http://solar.crao.crimea.ua/data/sunspots/>
 - FeI 6302 A
 - Maximal distance between sigma-components is transferred in intensity of a magnetic field.

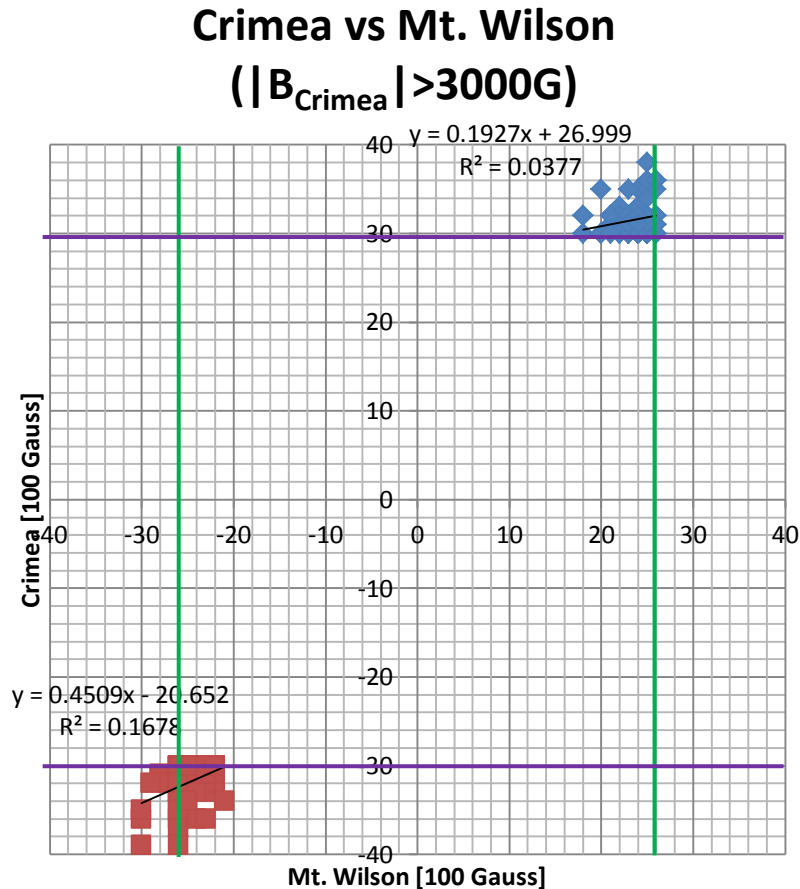
サンプリング1

Crimea vs Mt. Wilson
1 sketch/year



- 全ての黒点の磁場強度比較では、よい相関が得られた。
- 外れ値は誤記入によるもの？

サンプリング2



- Crimeaの磁場強度が $\pm 3000\text{G}$ 以上の黒点のみ
- Mt. Wilsonのデータは $\pm 2600\text{G}$ 程度で飽和
- 左下の -3000G 付近のデータ点は2002年5月のもの

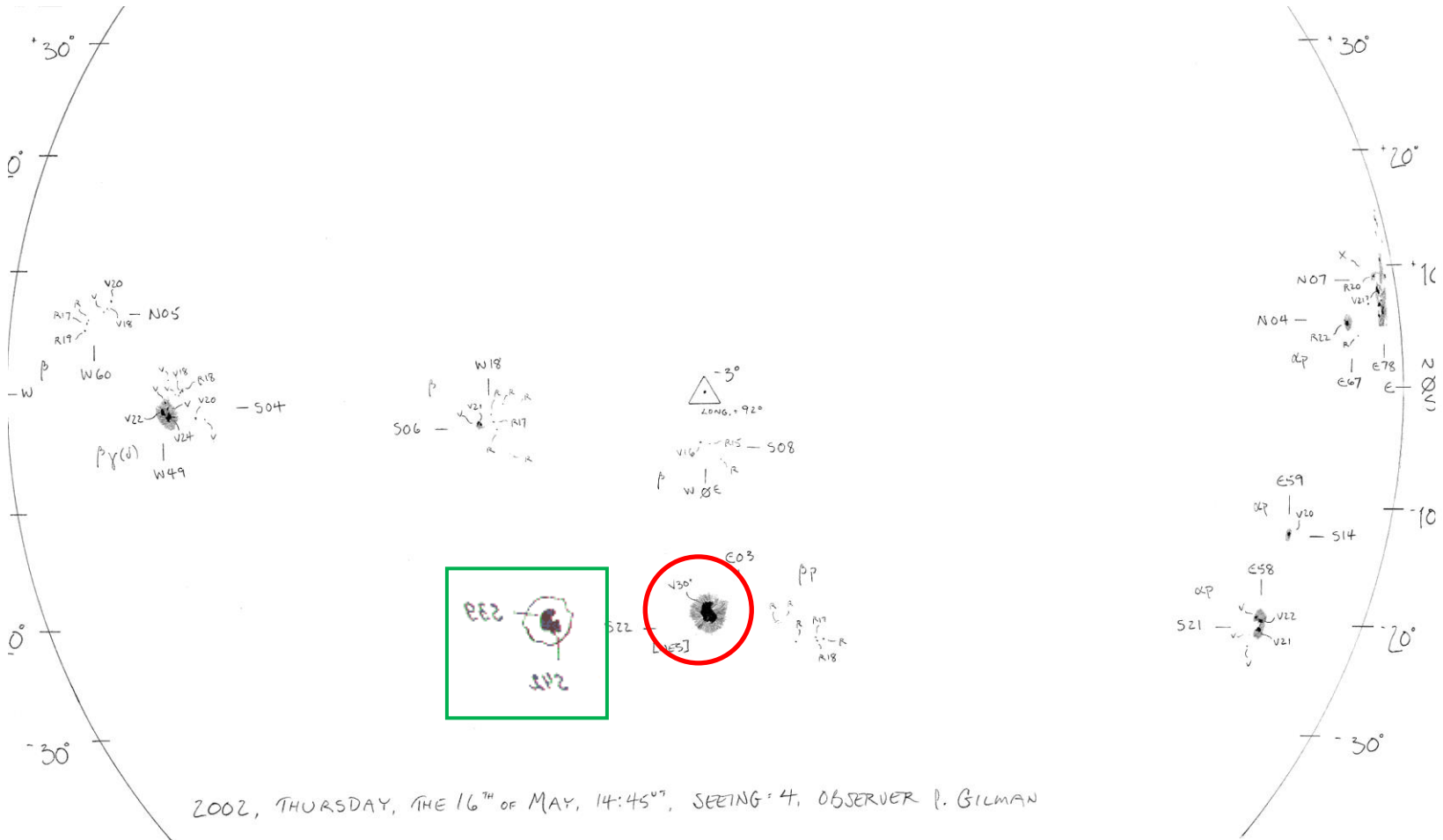
まとめ

- Mt. Wilsonのデータでは、2600G以上の磁場強度はほとんど現れない。
 - 2002年5月に-3000Gを記録
- 2500G以下の領域では、Mt. WilsonとCrimeaの磁場強度は良く一致する。

- 以下付録

- 2002年5月16日～19日におけるMt. Wilsonのデータ
 - V29、V30+の記載を唯一(?)確認
 - 反転している部分(□内)はCrimeaデータ

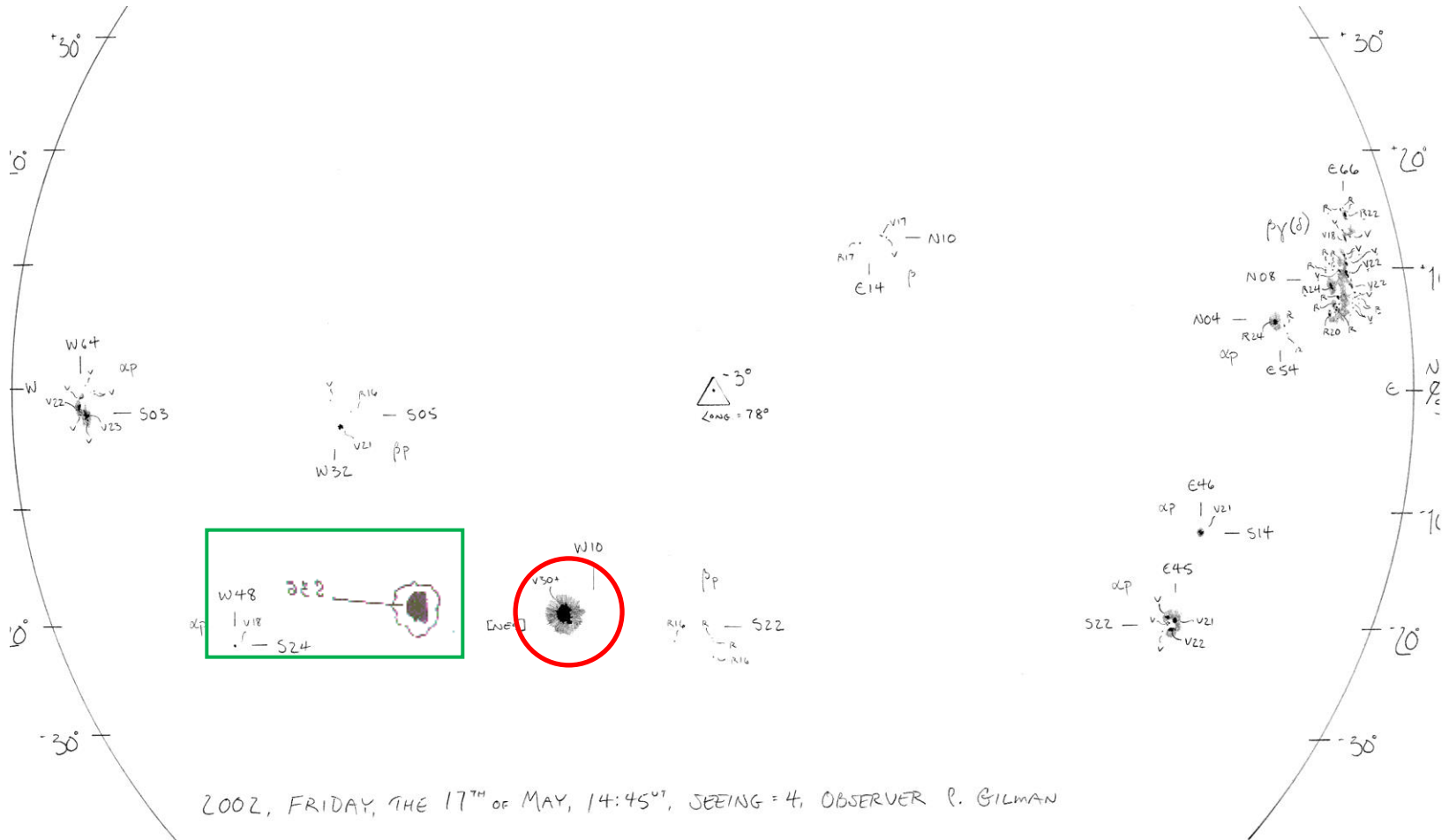
2002年5月16日



Mt. Wilson
Crimea

=-3000G+
=-3900G

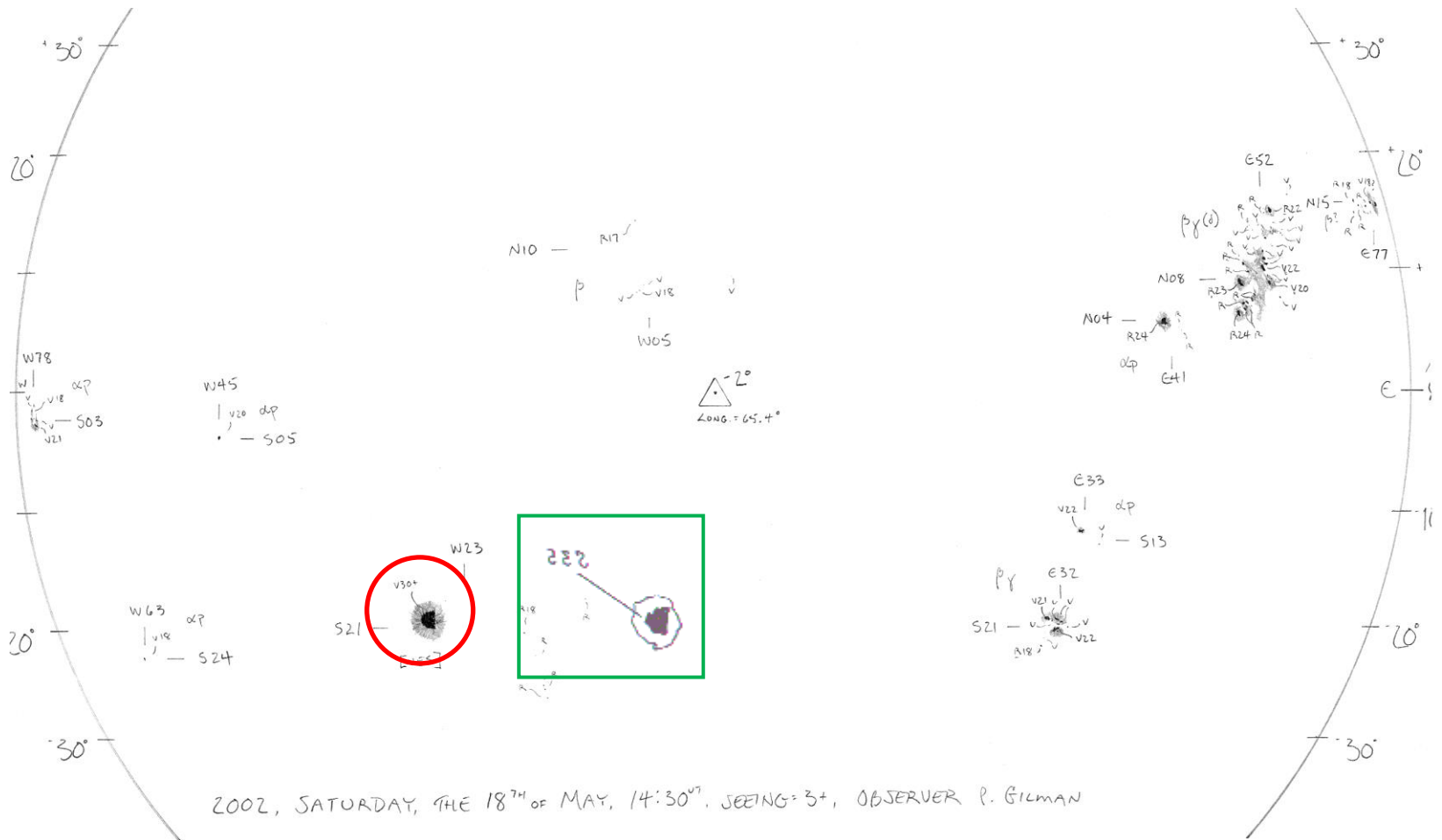
2002年5月17日



Mt. Wilson
Crimea

=-3000G+
=-3600G

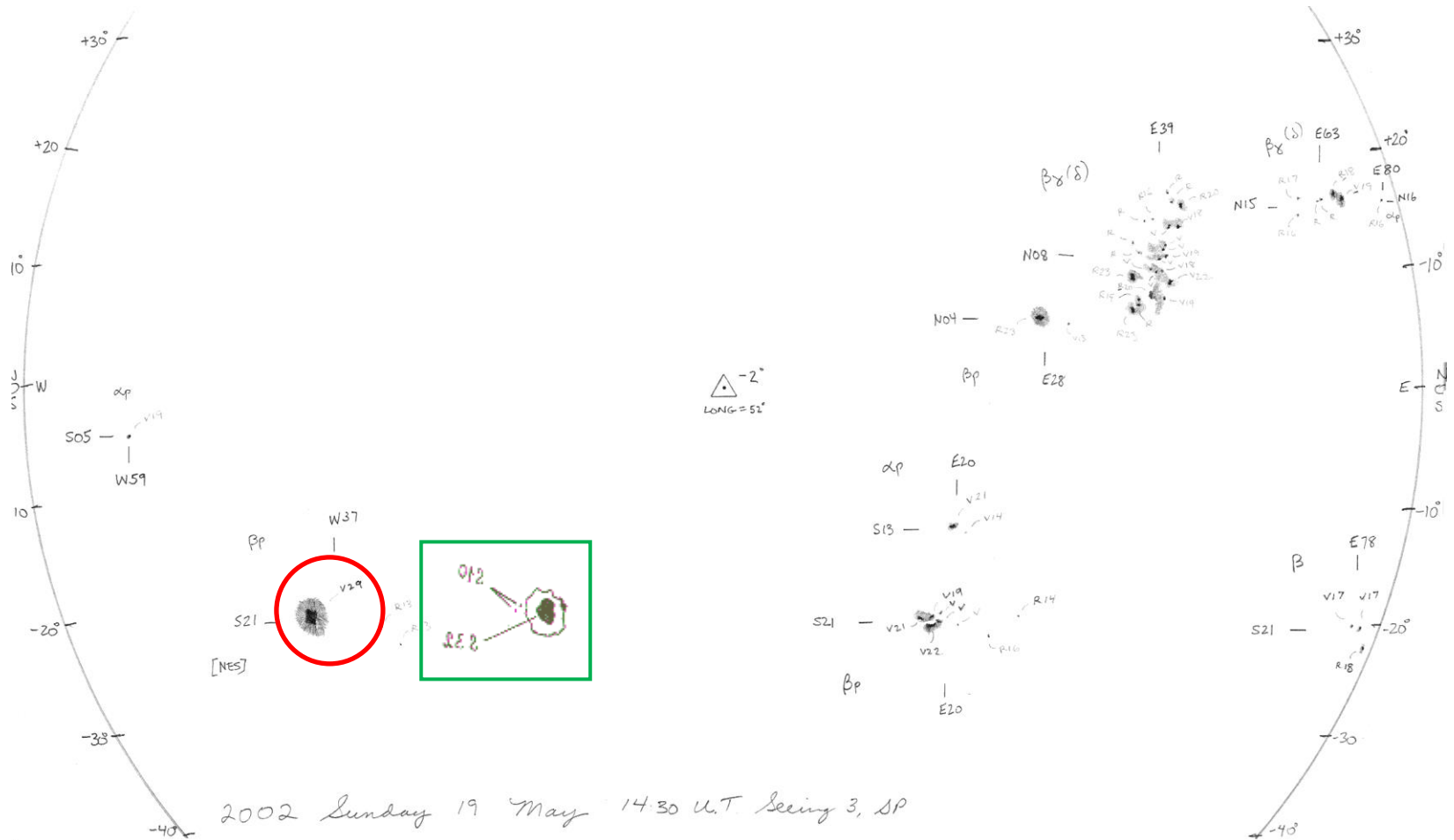
2002年5月18日



2002, SATURDAY, THE 18TH OF MAY, 14:30^{UT}. SEEING = 3", OBSERVER P. GILMAN

Mt. Wilson = -3000G+
 Crimea = -3500G

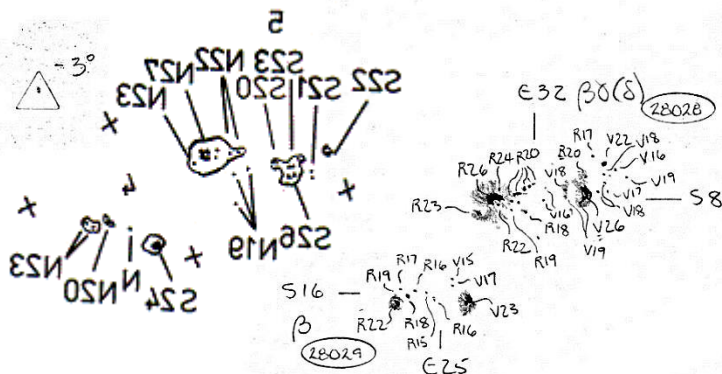
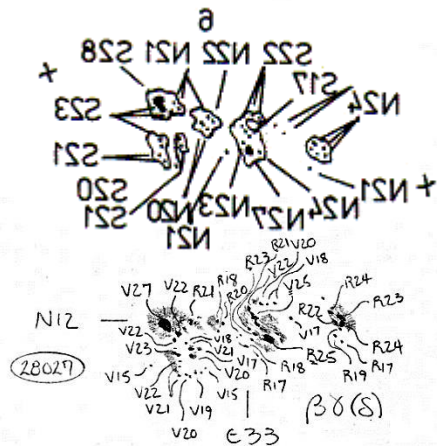
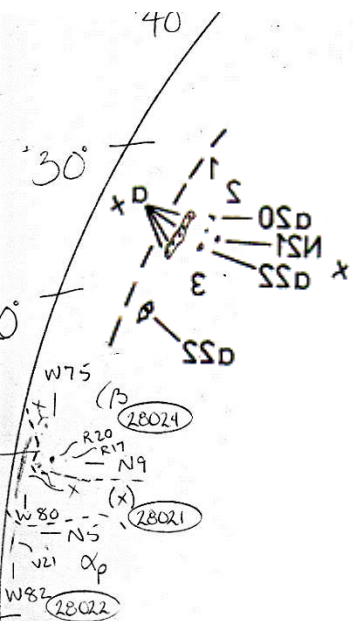
2002年5月19日



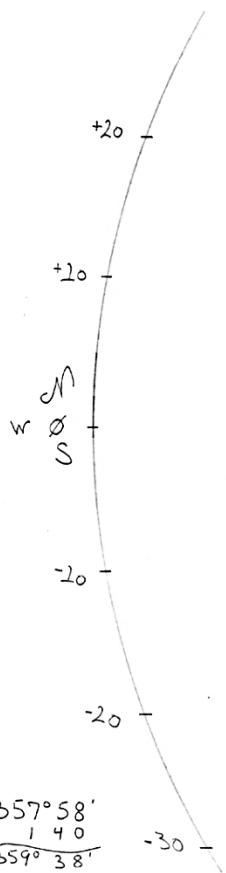
2002 Sunday 19 May 14:30 UT Seeing 3, SP

Mt. Wilson = -2900G
 Crimea = -3200G

- 1枚/1年比較用スケッチ
 - 背景はMt. Wilsonデータ
 - 反転している部分はCrimeaデータ



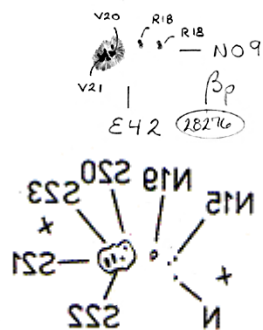
1994, SATURDAY, THE 1ST OF JANUARY, 16:00^{UT}. SEEING > 3-, OBSERVER P. GILMAN



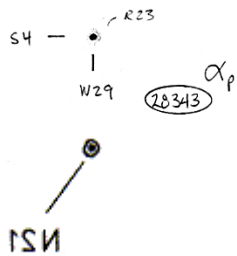
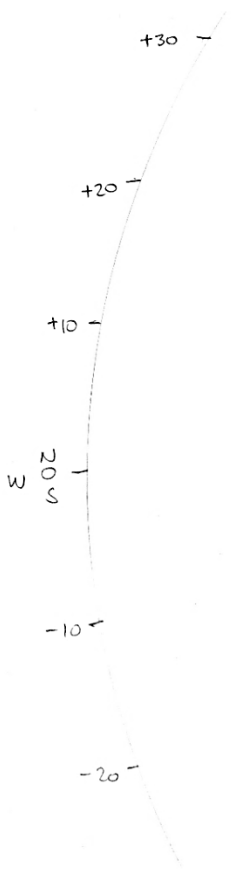
$357^{\circ}58'$
 $\quad 140$
 $\hline 359^{\circ}38'$

1995. MONDAY THE 3RD OF JULY. 14:00^{UT}. SEEING = 2. L. WEBSTER

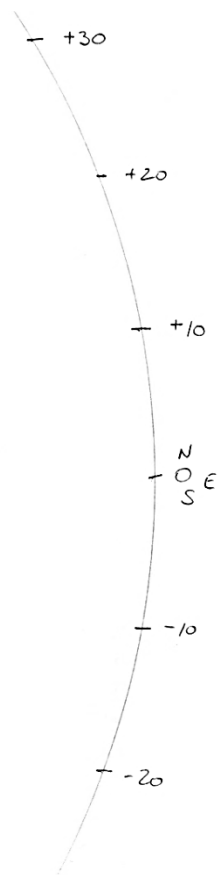
△ +3°



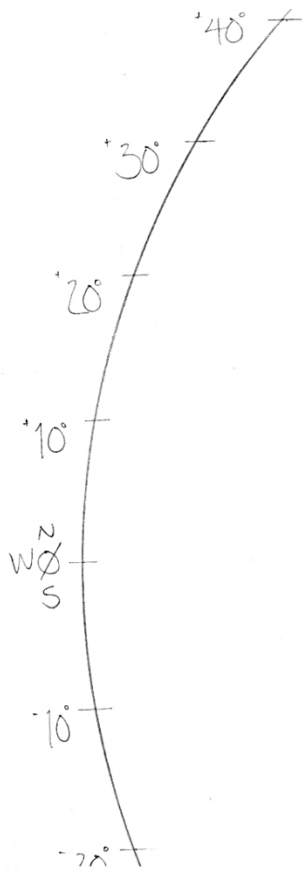
-30 1 GROUP



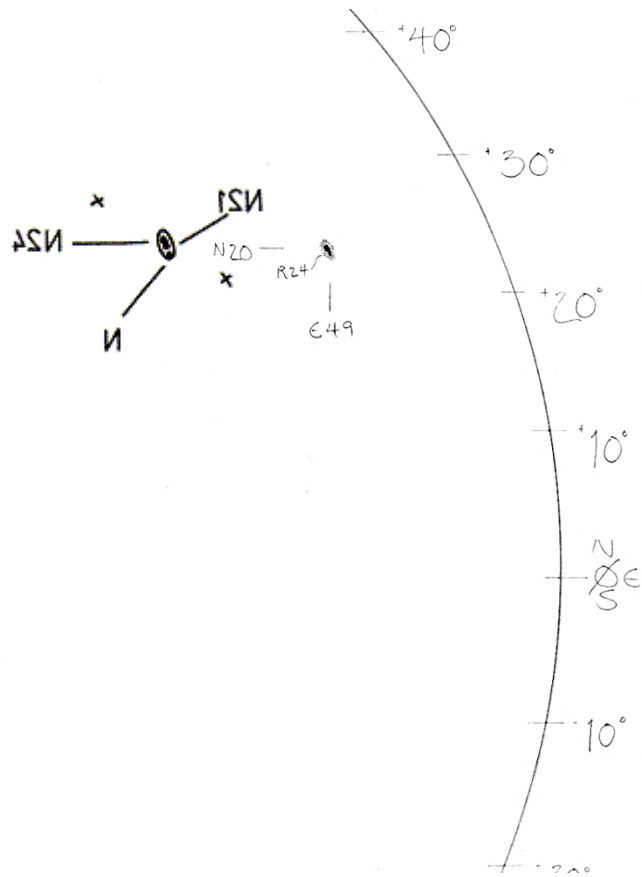
$\Delta -7^\circ$

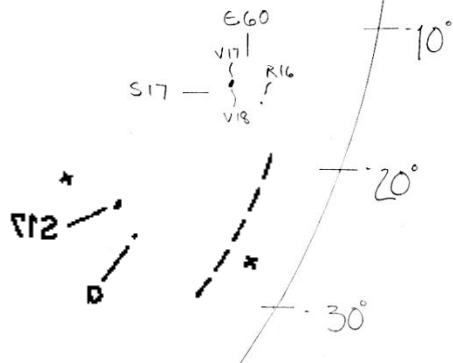
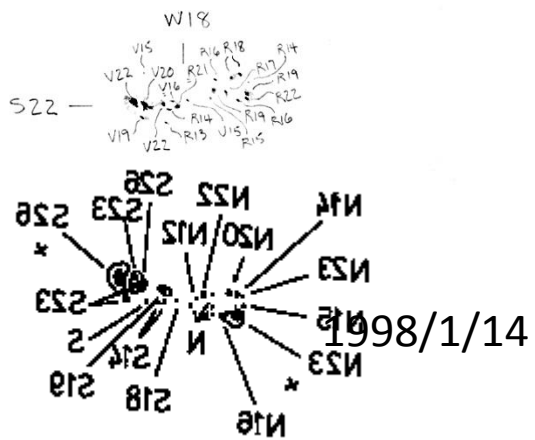
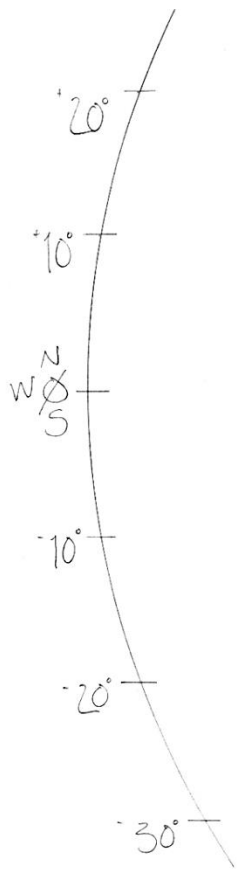


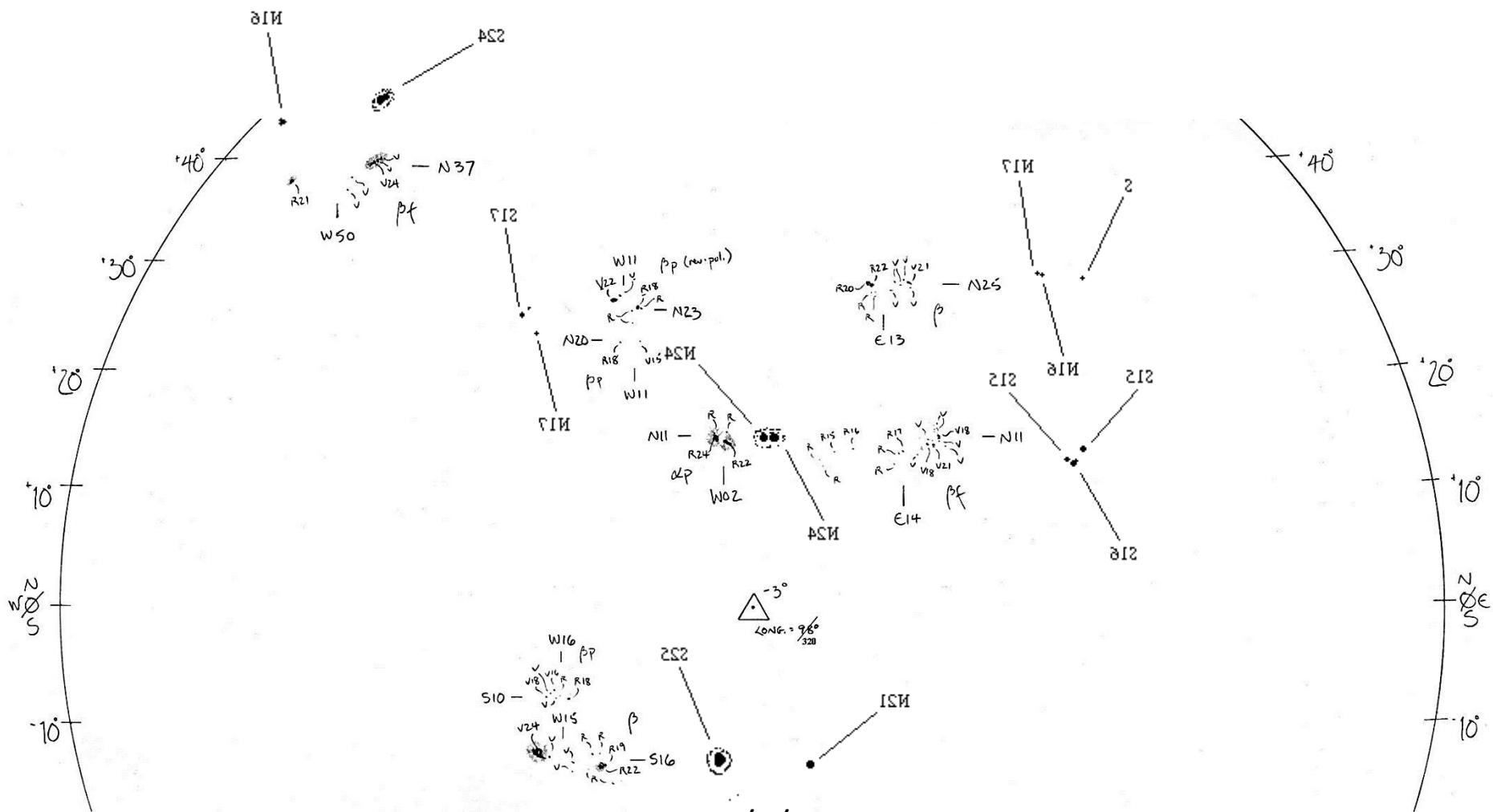
1996/3/16



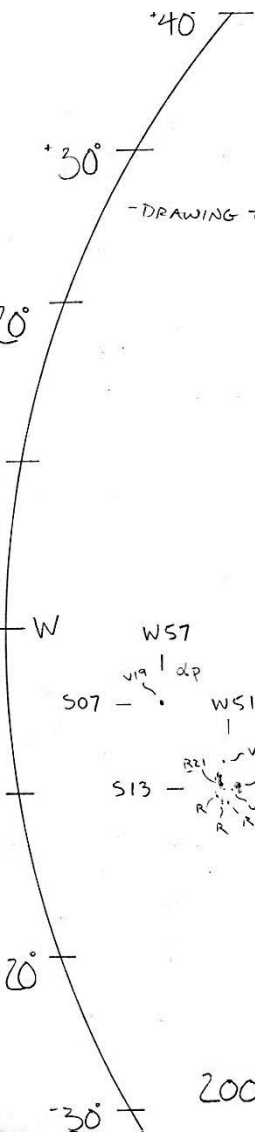
1997/5/7



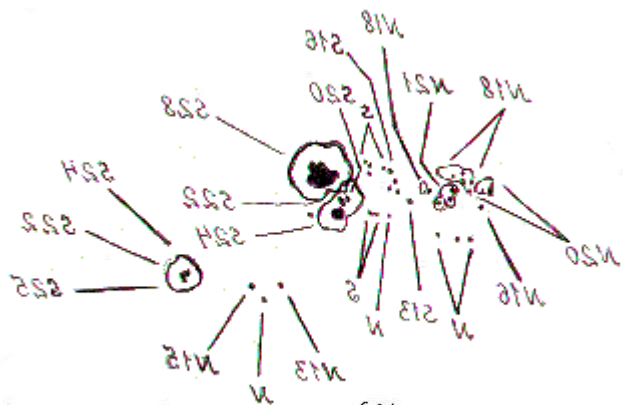
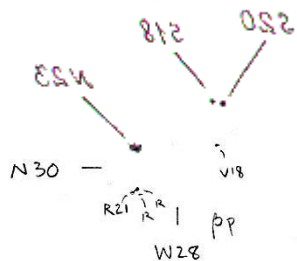




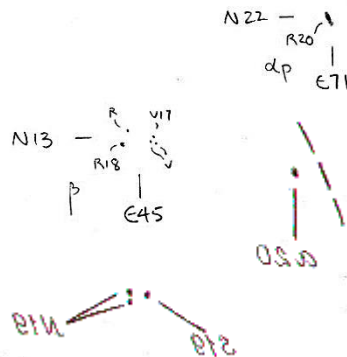
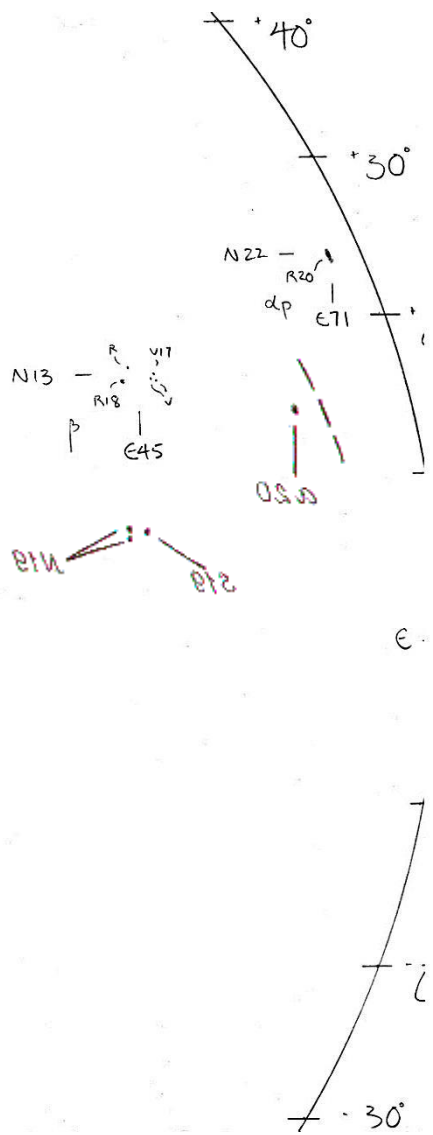
2000/1/4



-DRAWING THROUGH CLOUDS-



LONG. 209°



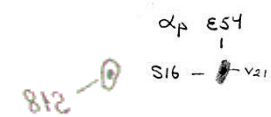
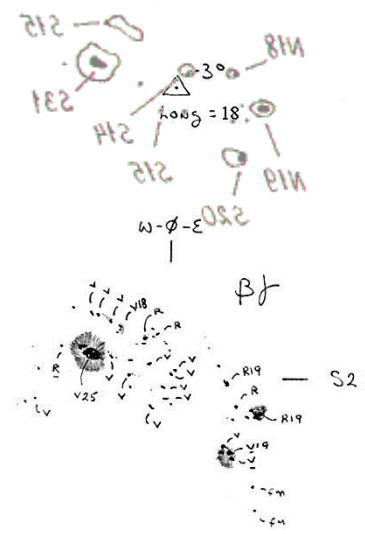
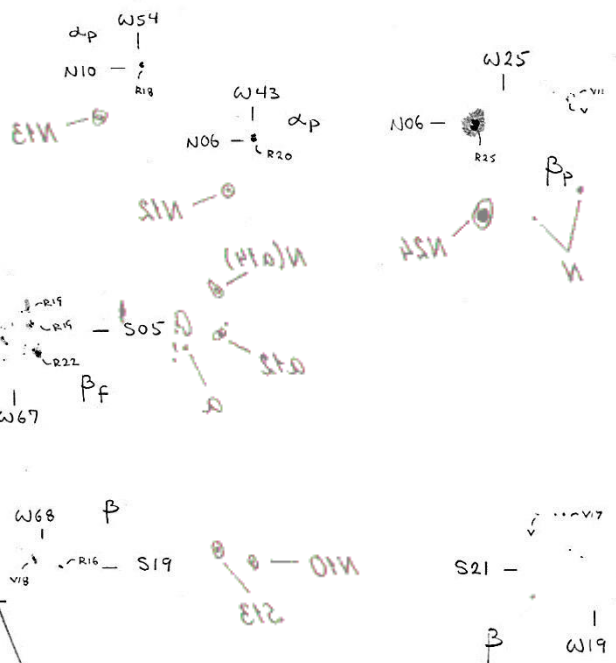
2001, MONDAY, THE 1ST OF JANUARY, 16:00^T, SEEING 3+, OBSERVER P. GILMAN

+30

DRAWING & POLARITIES DONE BETWEEN PASSING CLOUDS.

NOTE NO DRAWINGS JAN 2-4 DUE TO CLOUDS AND OTHER OBSERVING PRIORITIES.

+20



+30

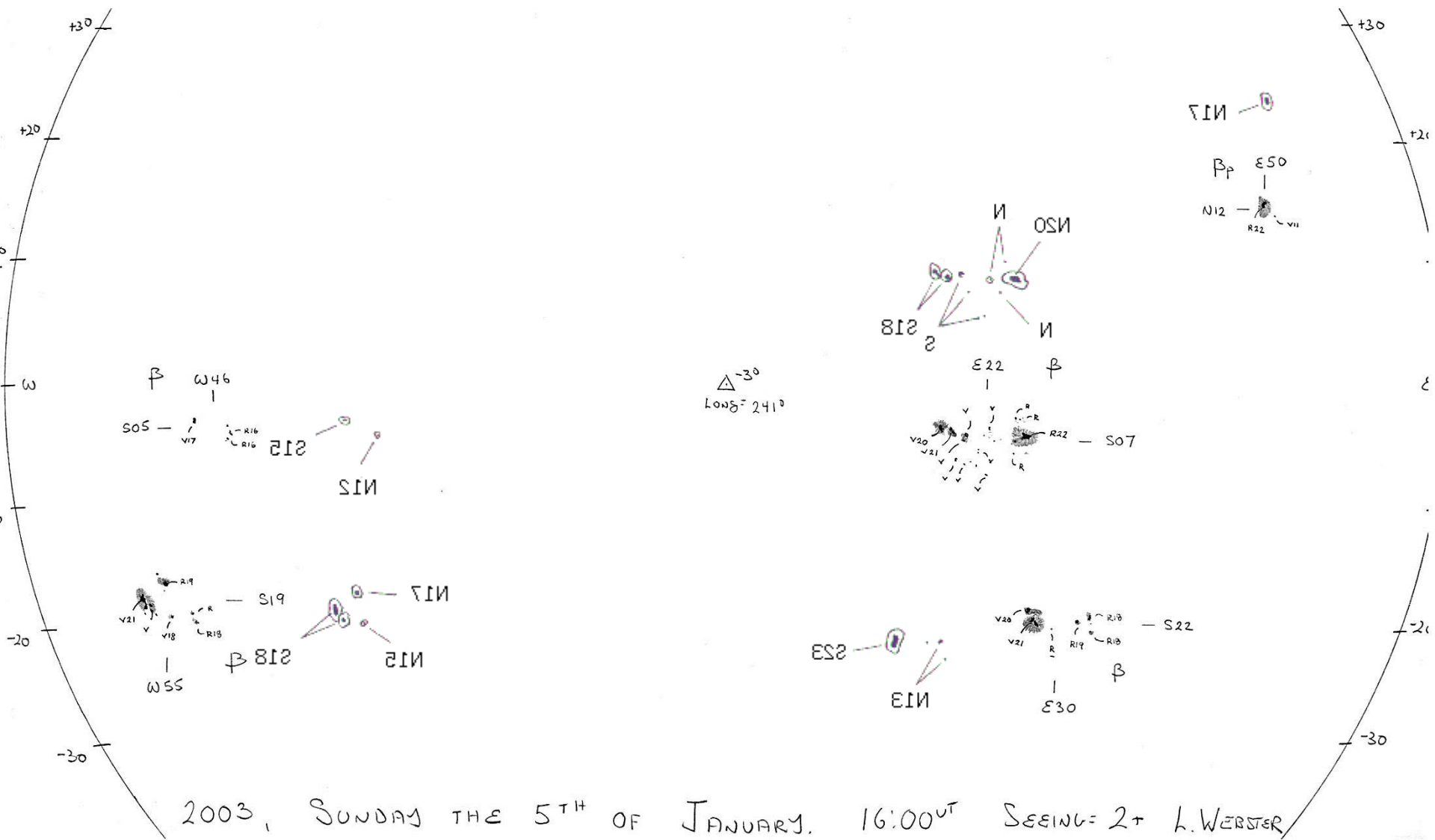
+20

E

-20

-30

2002. SATURDAY. THE 5TH OF JANUARY. 16:00 DWG. - 16:30 TO 19:00 POLAR. SEE=3- L.W.



+30

- DRAWING DONE THROUGH CLOUDS -

+20

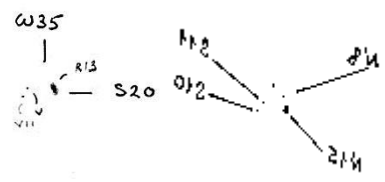
0

W

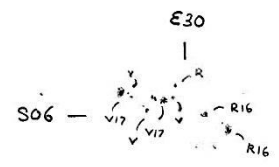
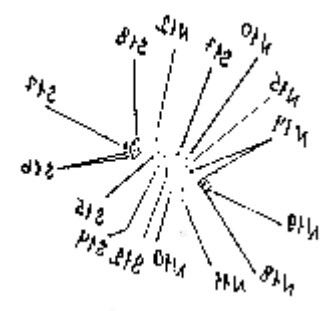
0

-20

-30



$\triangle -3^\circ$
 $\text{long} = 153^\circ$



+30

+20

E

E79

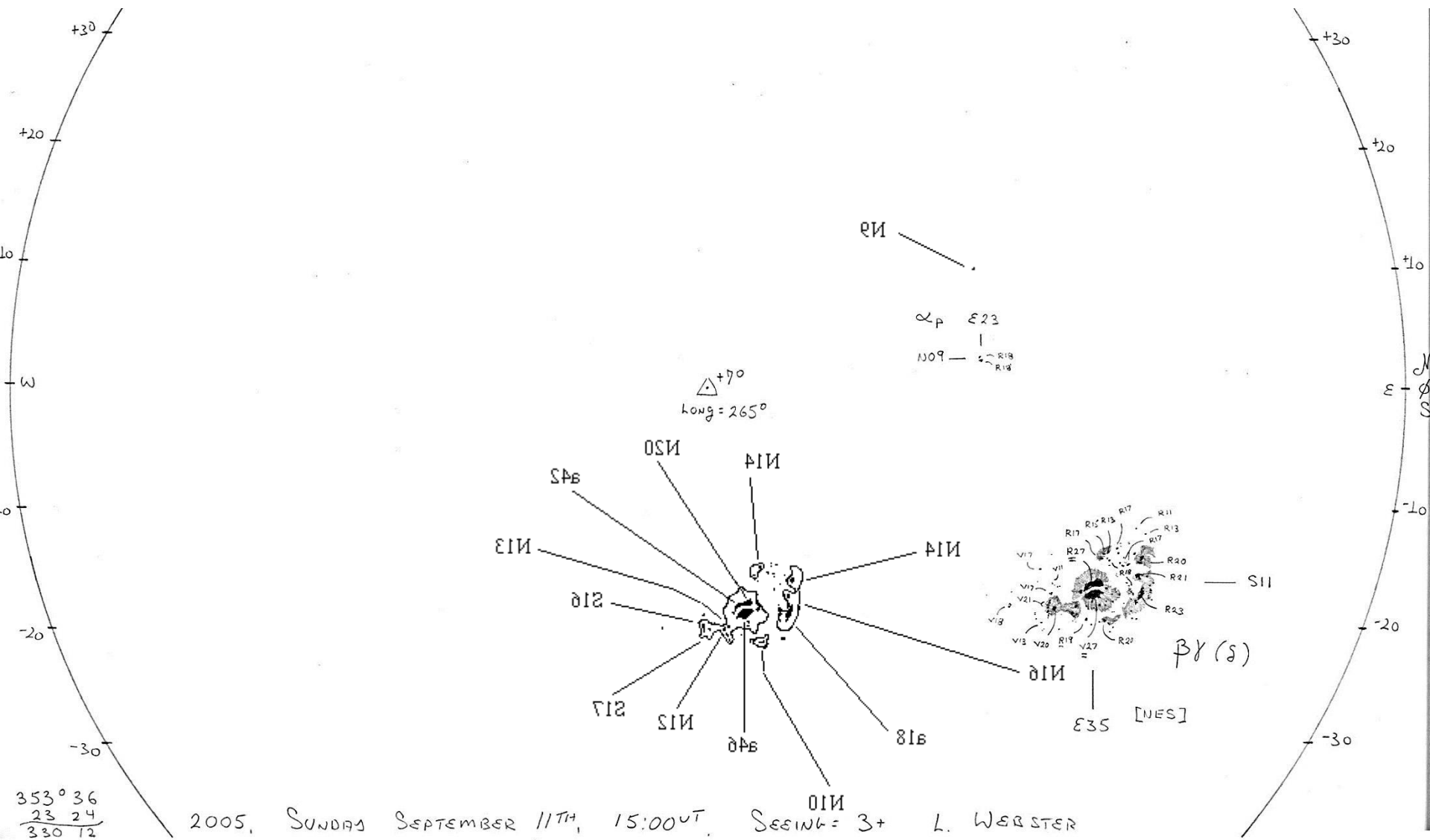
S11

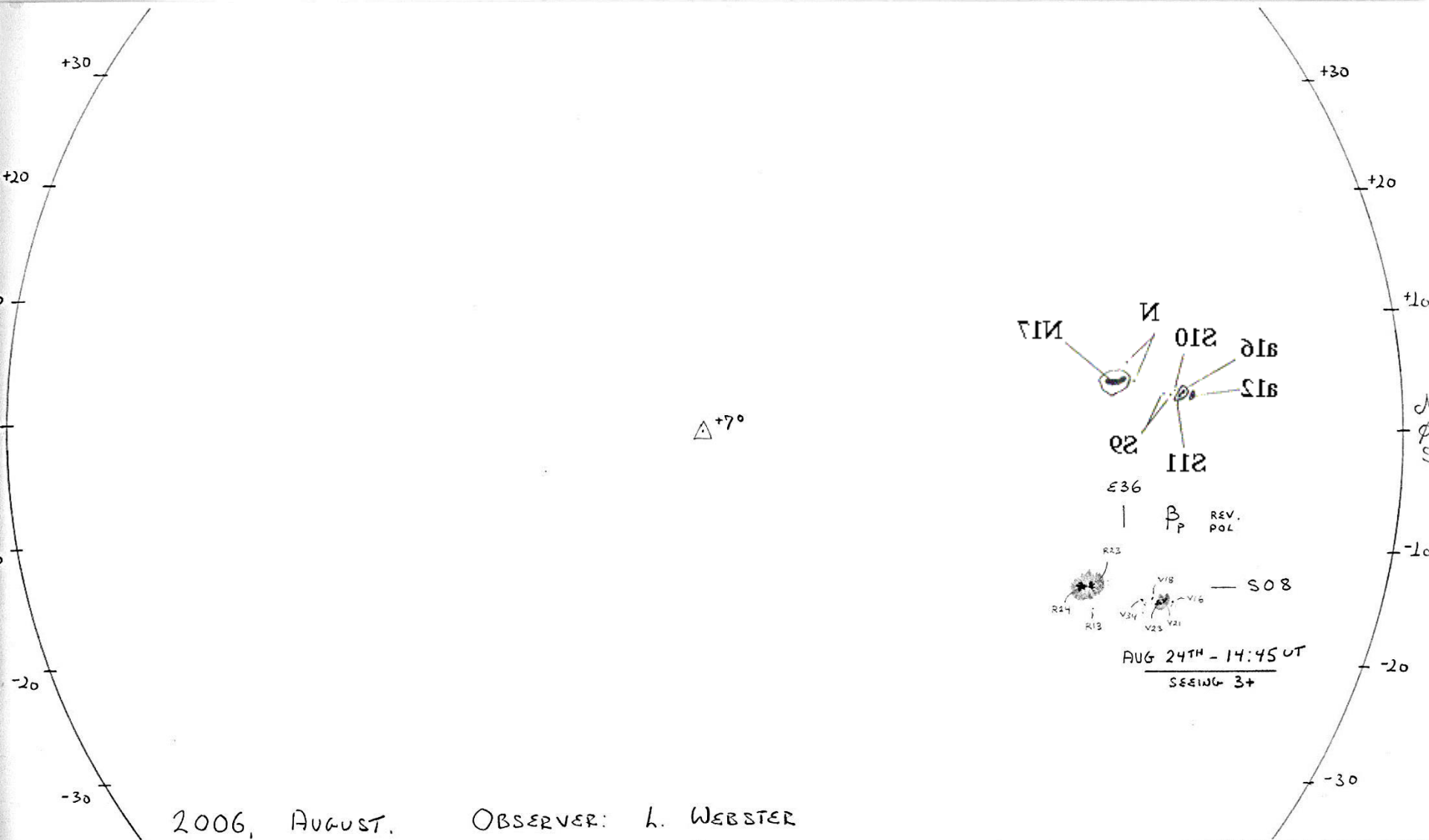
V22

-20

-30

2004, THURSDAY THE 1ST OF JANUARY. 21:00^{UT} SEEING = 2 L.W.





- THROUGH CIRRUS VEIL -

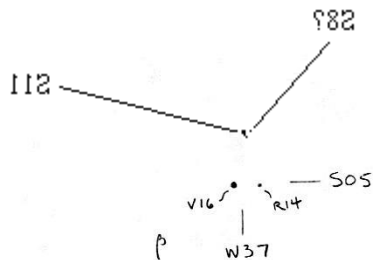
-7°
LONG. = 178°

S11 —
PP
S12 — ⊗
V15 V16
V17
E48
R16
R15

2007, SUNDAY, THE 18TH OF FEBRUARY, 16:15^{UT}, SEEING = 3, OBSERVER P. GILMAN

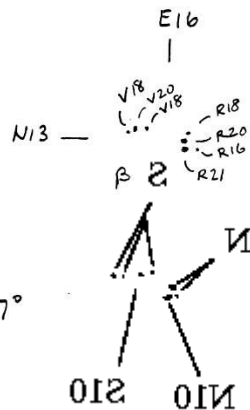
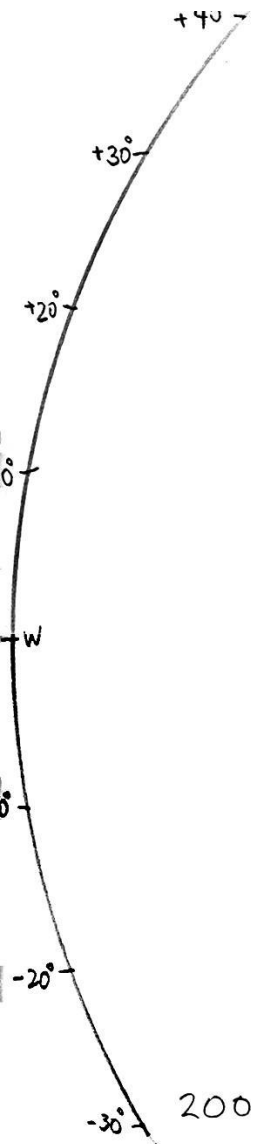
2008, SUNDAY FEB 19, NO SPOTS SEEN, 15:15 UT, 3, LW

MON., 2/11, 15:15, 2, LG
TUE., 2/12, 15:20, 14, 16
WED., 2/13, 15:20, 3, LG
THU., 2/14, 19:30, 2, LG
FRI., 2/15, 16:15, <1, LG (WINDY)
SAT., 2/16, 15:15, 3, LW
SUN., 2/17, 15:30, 3, LW
MON. 2/18, 16:45, 3, SP (CIRRS)
TUE. 2/19, 16:00, 2, SP (THROUGH CIRRS)
2/20 - 2/22 NO OBS - FOG, RAIN
2/21 - 22 FOG, RAIN
2/23 16:00 UT, SEEING = 2+ NO SPOTS, LW
SUN 2/24 - RAIN



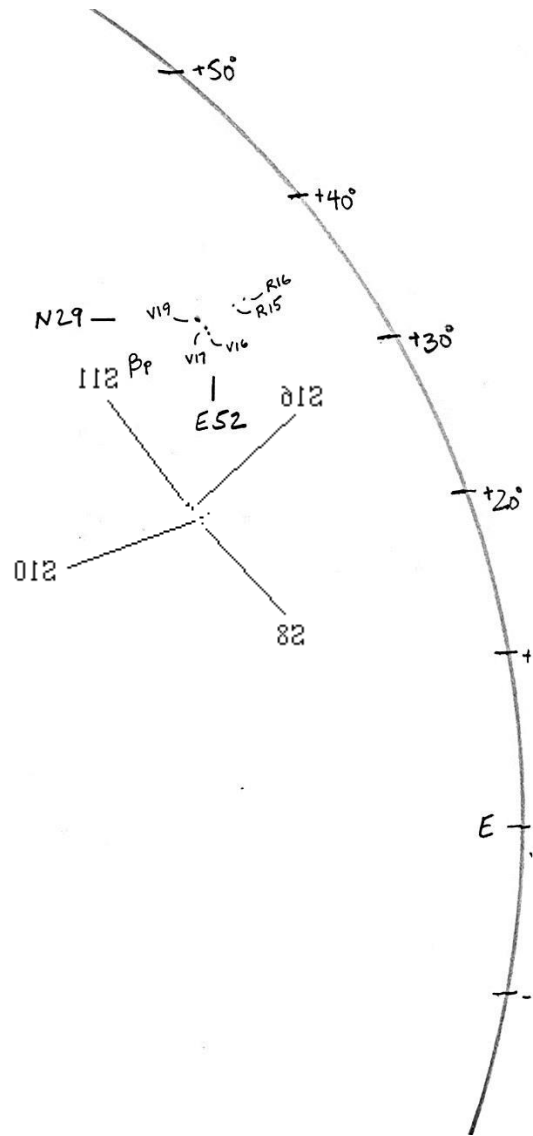
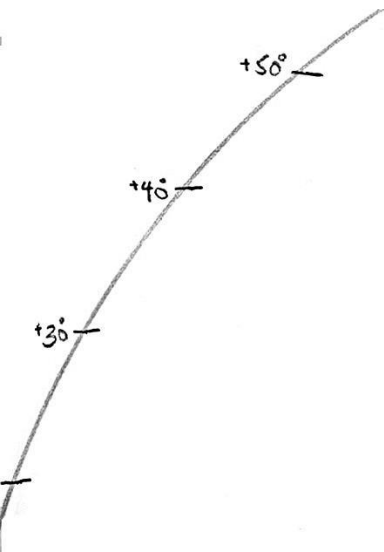
-7°
LONG. = 308°

2008, THE 25TH OF FEBRUARY, 16:30^{UT}, MONDAY, SEEING = 2+, OBSERVER P. GILMAN



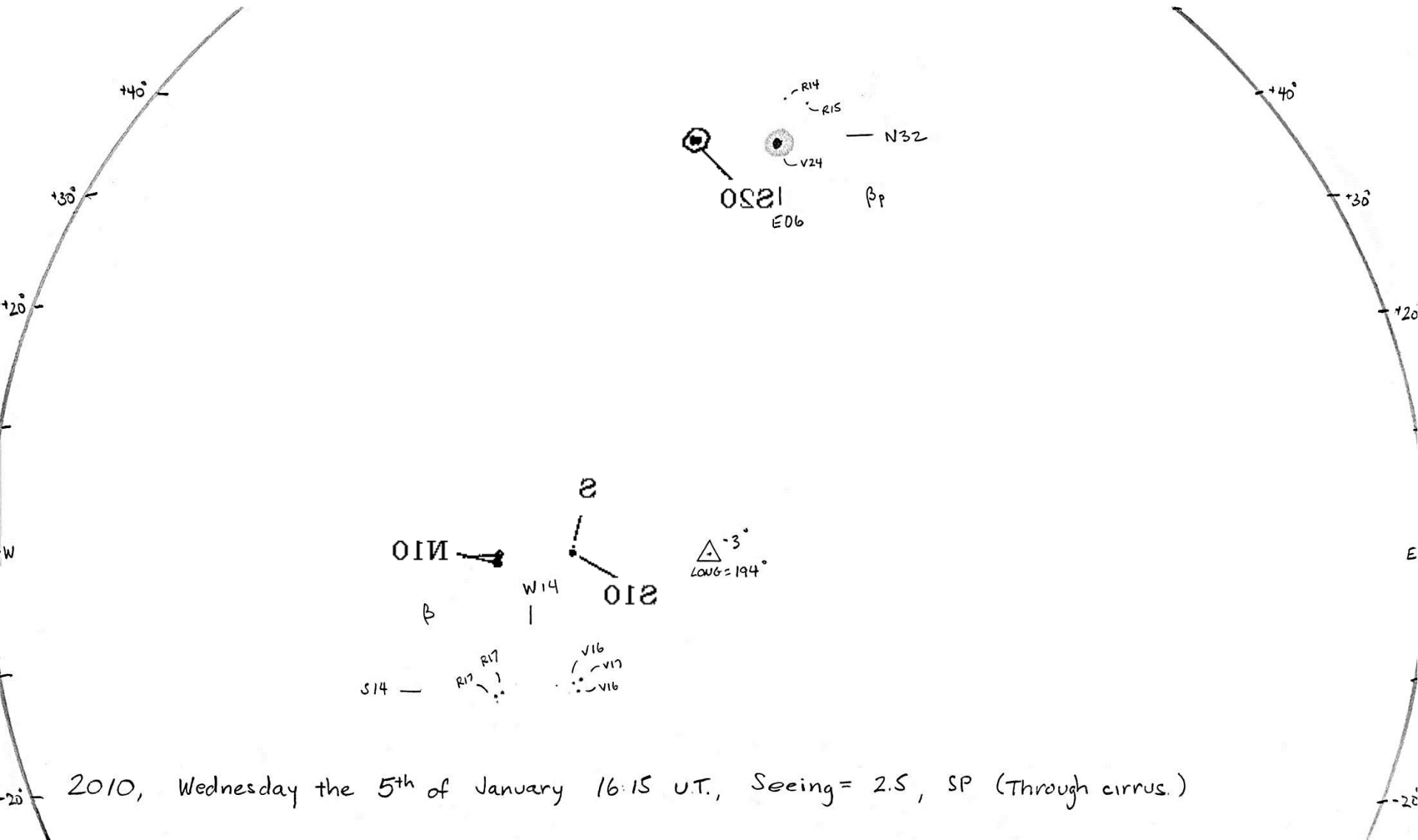
$\triangle +5^\circ$
 LONG = 227°

2009 Friday the 23rd of October 15:45 U.T., Seeing = 3.5, S.P.

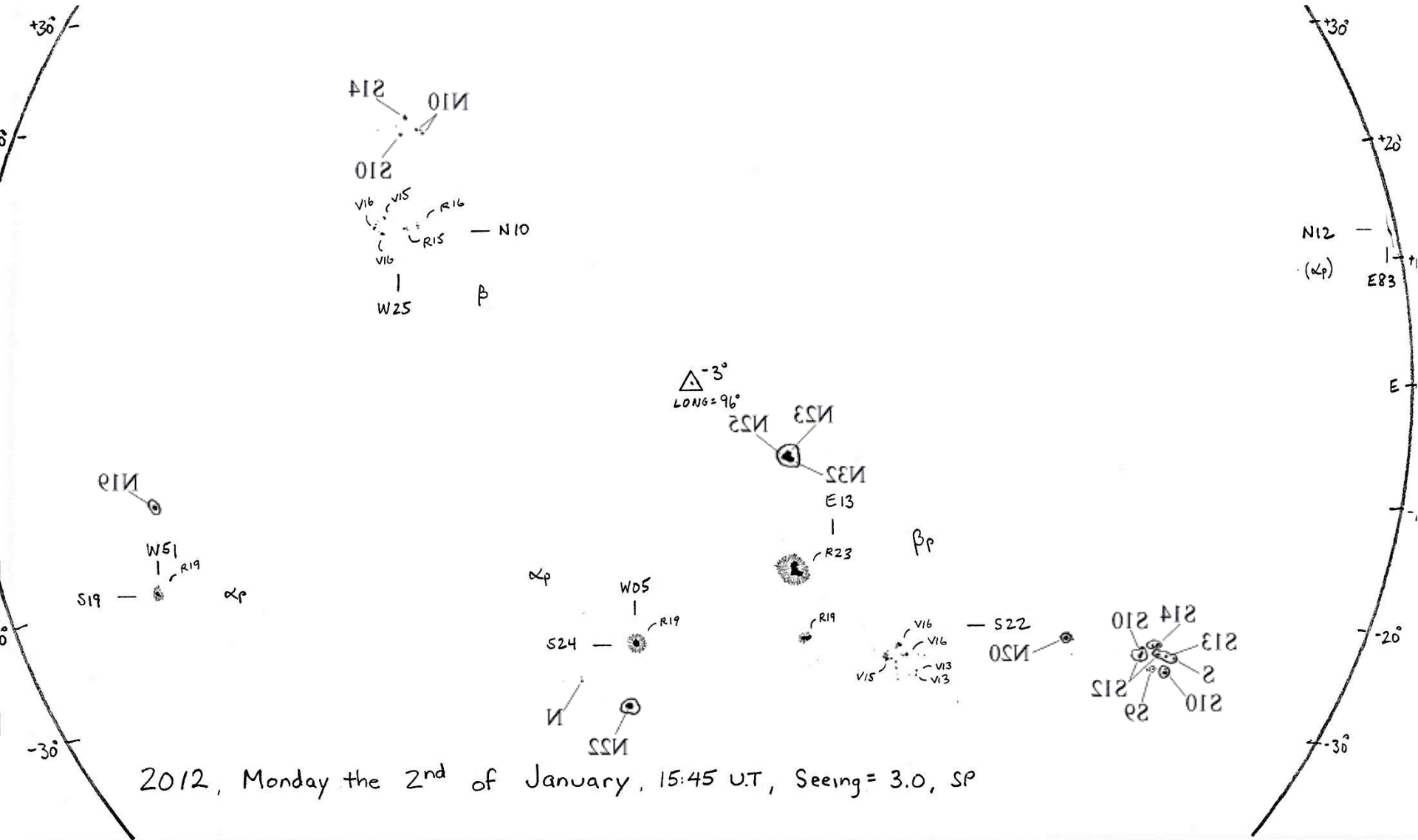


△ -4°
LoN6 = 292°

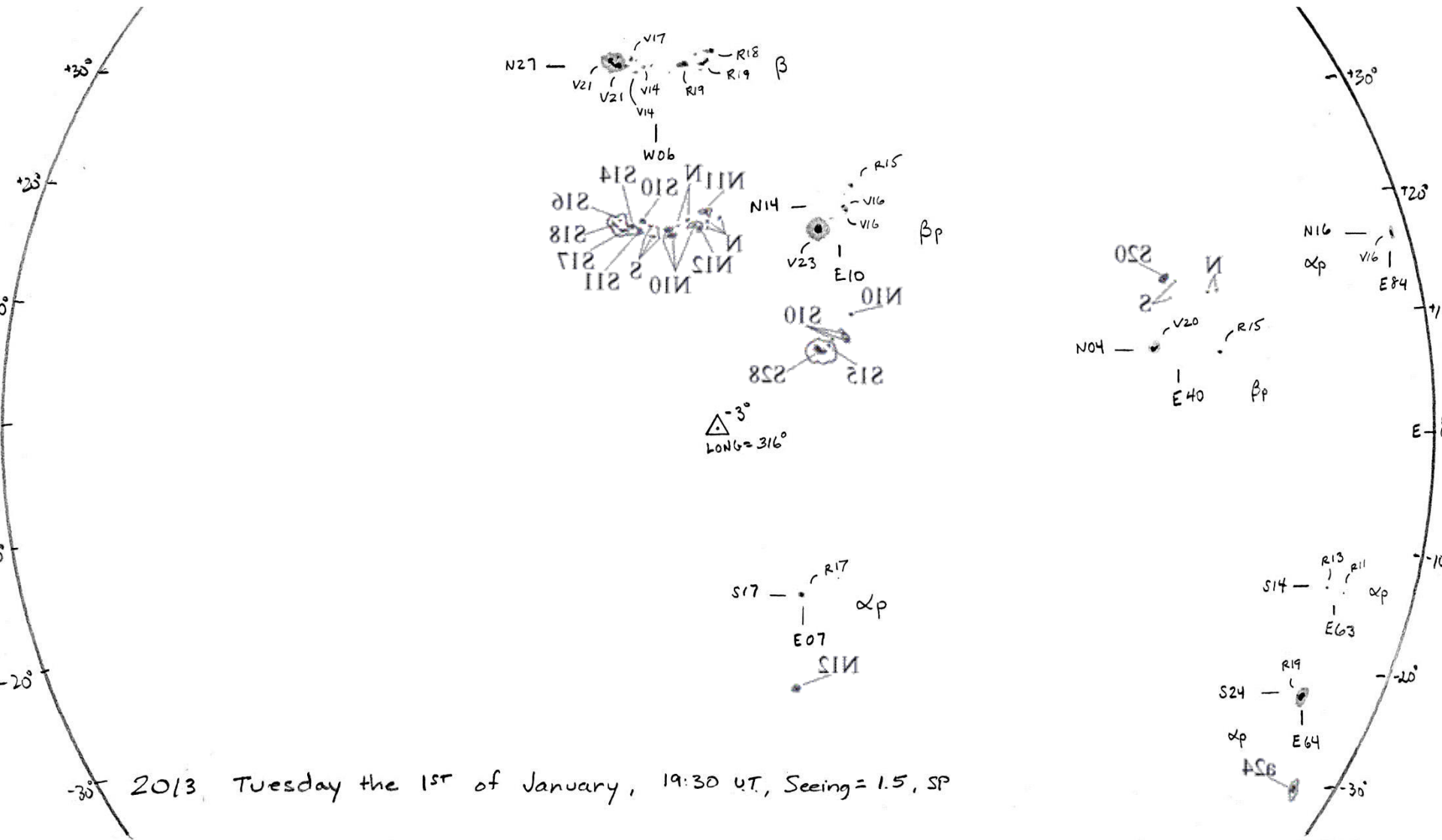
2010, Friday the 8th of January 16:45 UT., Seeing = 3.0, SP.



2010, Wednesday the 5th of January 16:15 U.T., Seeing = 2.5, SP (Through cirrus.)



2012, Monday the 2nd of January, 15:45 U.T, Seeing = 3.0, SP



2013 Tuesday the 1st of January, 19:30 UT, Seeing = 1.5, SP