Filament Disappearances Observed by 32 GHz Radio Maps and a Proposal for an Observational Study of Filament Disappearances by the Nobeyama Radioheliograph

Communications Research Laboratory
Hiraiso Solar Terrestrial Research Center
Shin-Ichi Watari

Flare and Filament Disappearance

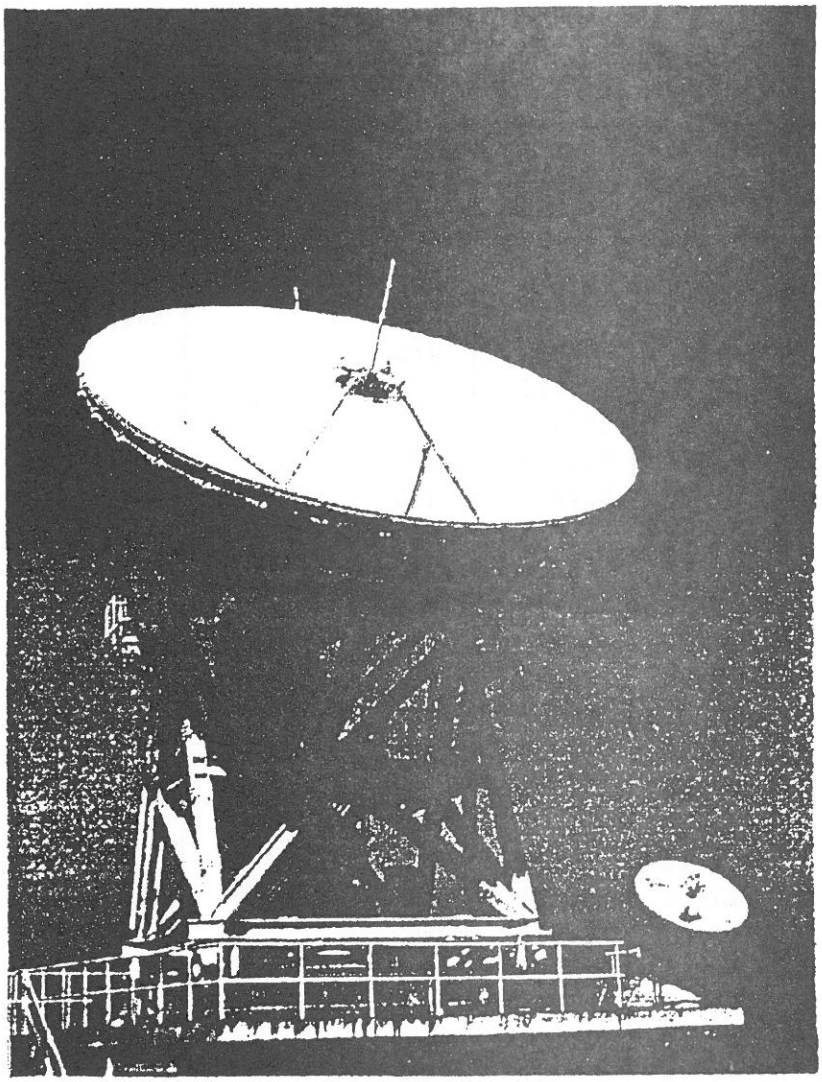
	Flare	Filament Disappearance
Radio Emission (GRF etc.)	○	○
Soft X-ray Emission (LDE)	○	○
Energetic Particle	○	○
Coronal Mass Ejection (CME)	○	○
Geomagnetic Strom	○	○
Magnetic Reconfigration	○	○

[Summary]

- Two kinds of radio filament disappearances.
- Radio filament disappearances associated with geomagnetic storms.

[An Observational Study by the Nobeyama Radioheliograph]

- How filaments disappear by radio observation?
- The characteristics of radio filament disappearances associated with geomagnetic storms.



鹿島支所10mパラボラアンテナ

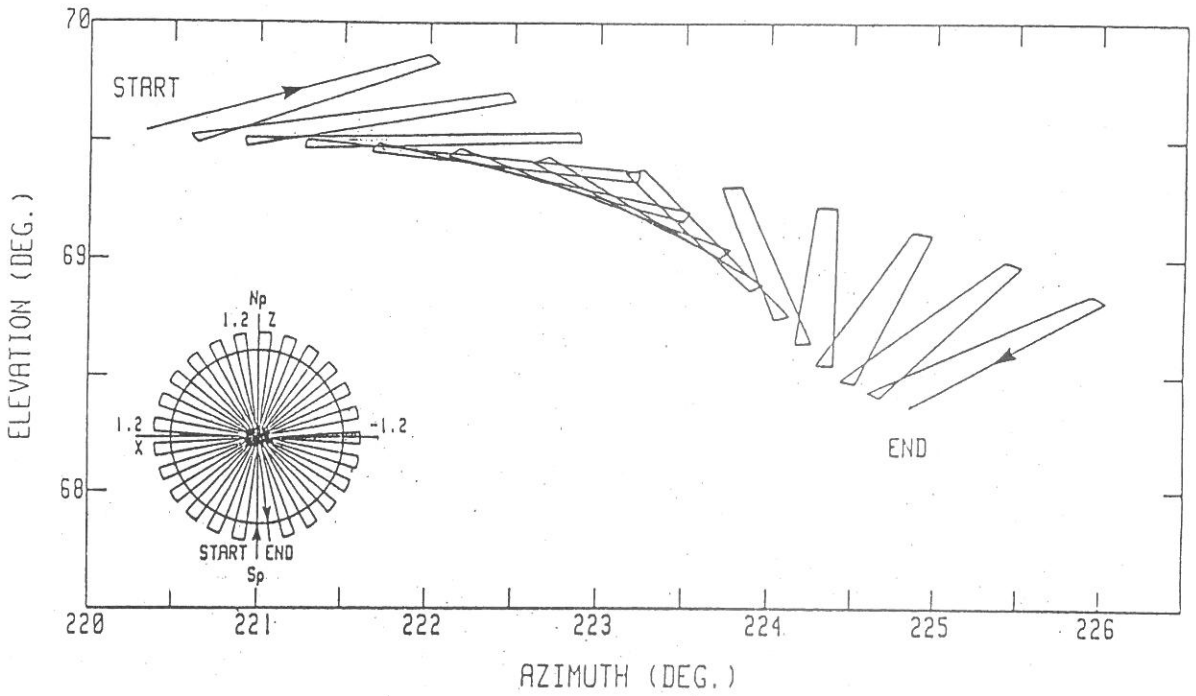
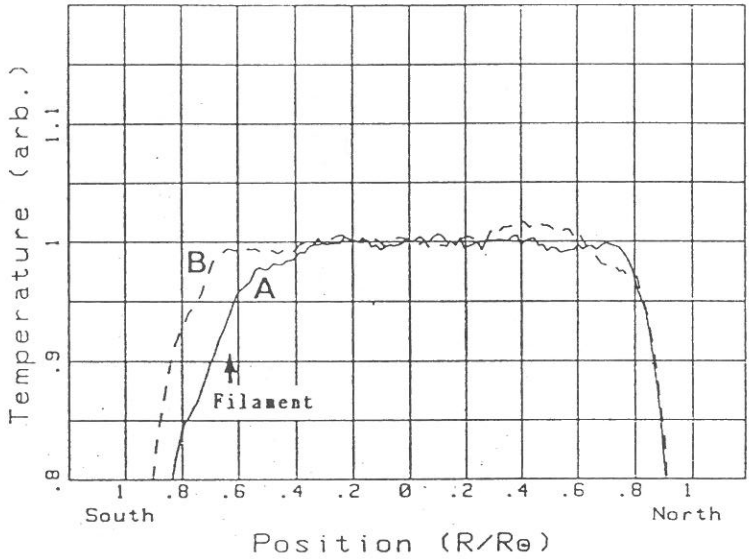


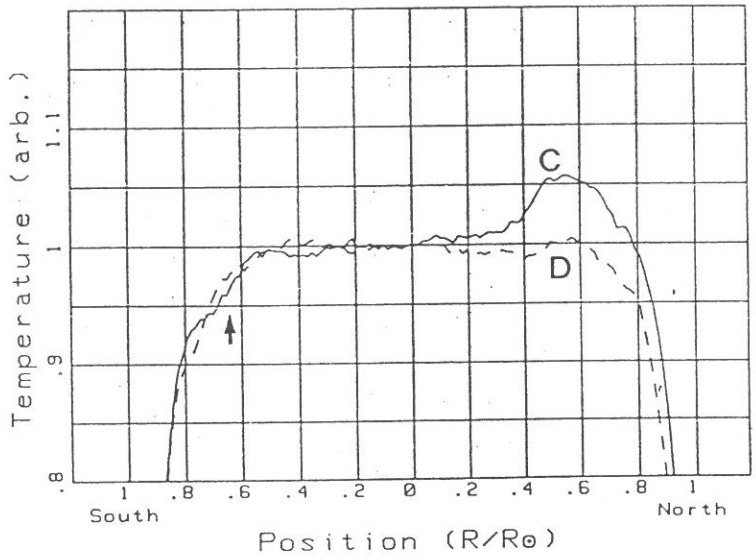
Table 1 DSFs Obs rved on 32 GHz Radio Maps

Date of Disappearance	Position	Radio Depression after DSF	Phenomena Associated with DSF
1986 04/03-05	N40W06	NO	
1987 03/03-04	S41W53	NO	Magnetic Storm
07/19-20	N40W43	YES	
07/28-29	S45W13	YES	
09/23-24	S52W21	NO	
11/01-02	S29E10	NO	
1988 01/24-25	S38E01	YES	
02/09-10	N48E03	NO	
05/03-04	S45E10	NO	CME & Magnetic Storm
06/01-02	S36W31	NO	
06/14-15	S31W43	NO	Magnetic Storm
07/01-02	S37E65	NO	
07/24-25	N50W03	NO	
07/26-27	S37W03	YES	
08/07-08	S34W28	NO	Magnetic Storm
08/16-17	S35W18	NO	
10/12-13	S42E32	NO	
11/27-28	S65E20	NO	CME & Magnetic Storm
12/09-11	N30W10	NO	
12/13-14	N10W08	NO	
1989 01/30 -02/02	N49E35	NO	Magnetic Storm
03/18-19	S14W50	YES	

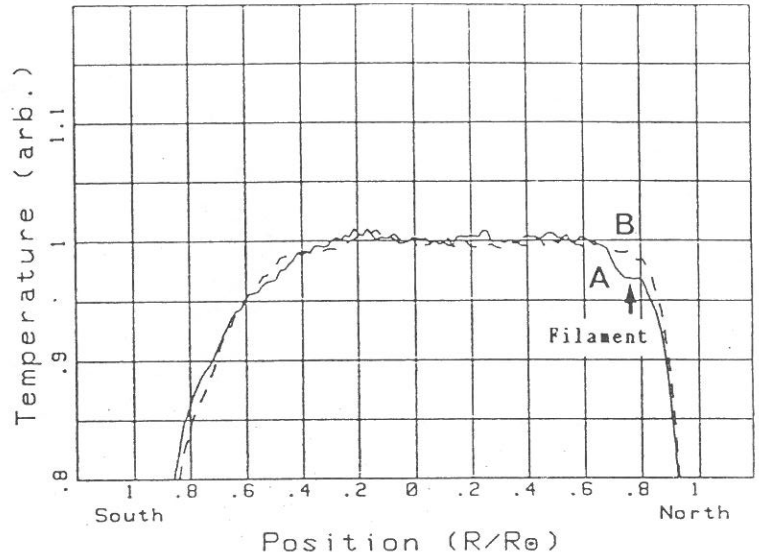
CME : Coronal Mass Ejection



(a)Before the disappearing filament.



(b)After the disappearing filament.



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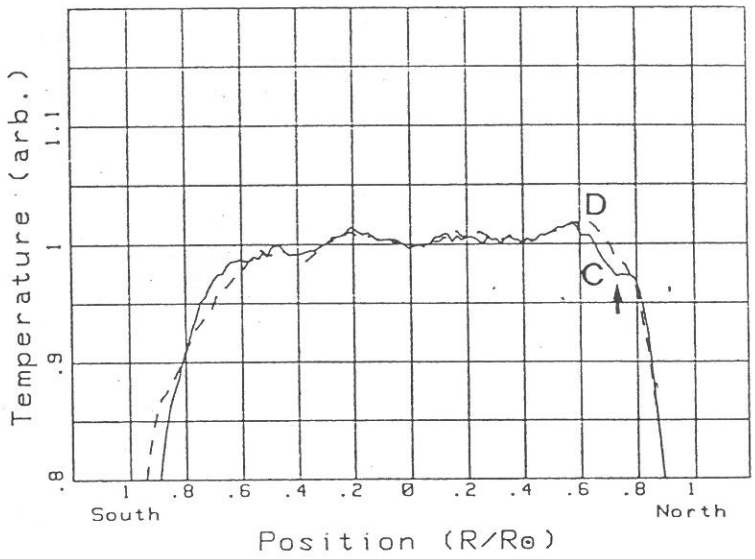
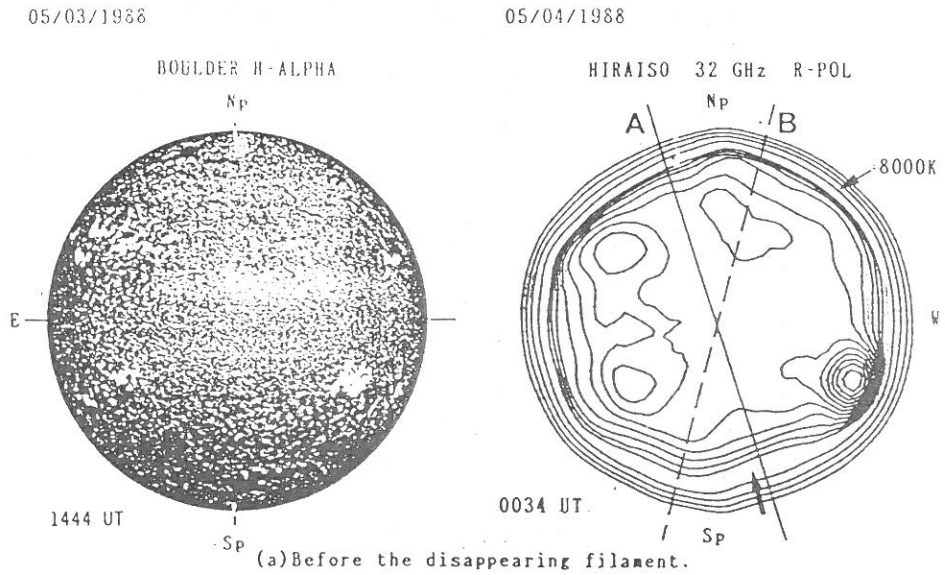


(b)After the disappearing filament.



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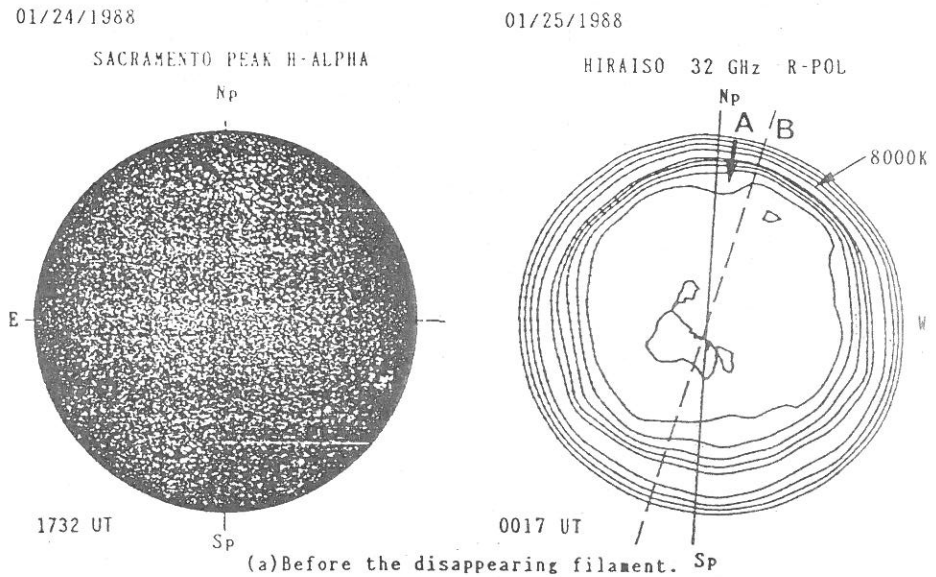

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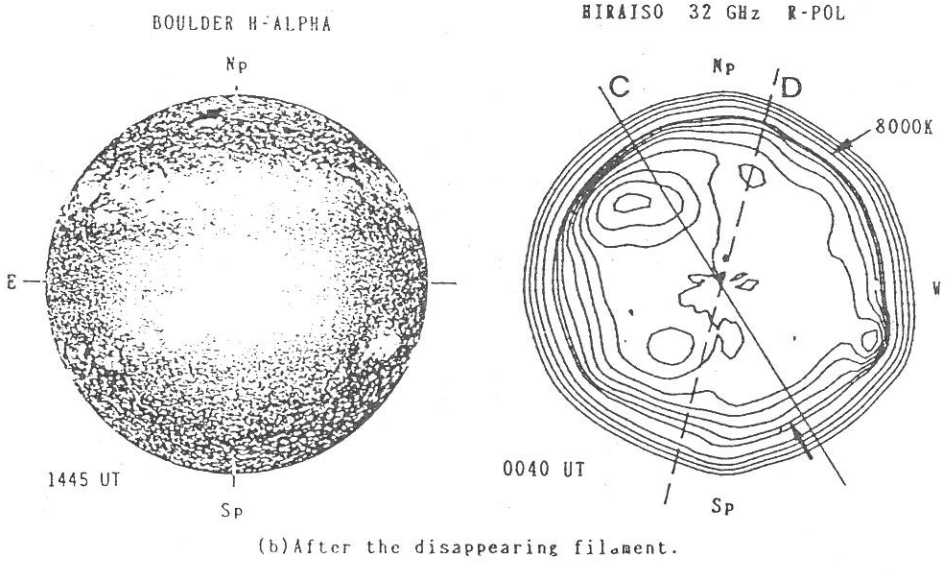
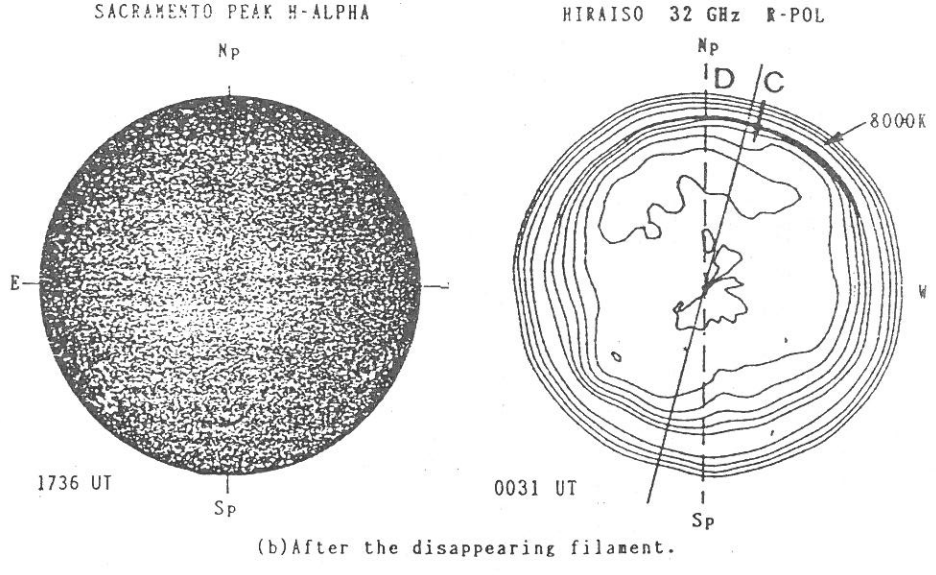


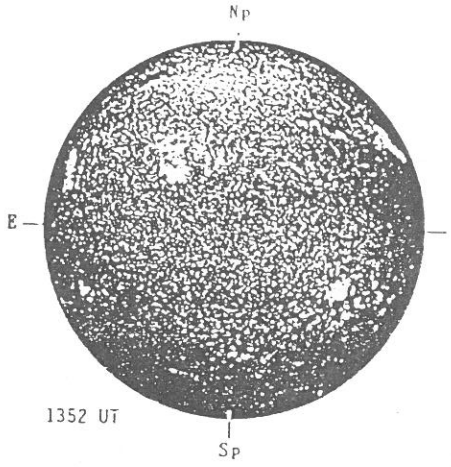
(b)After the disappearing filament.



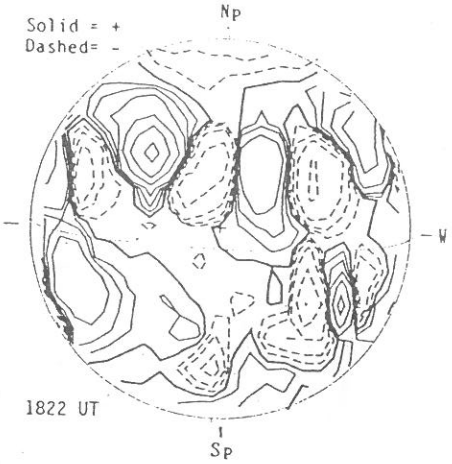
(b)After the disappearing filament.

08/08/1988

BOULDER H-ALPHA



STANFORD MAGNETOGRAM



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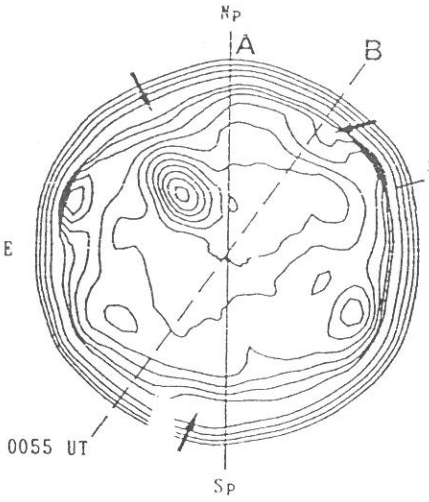
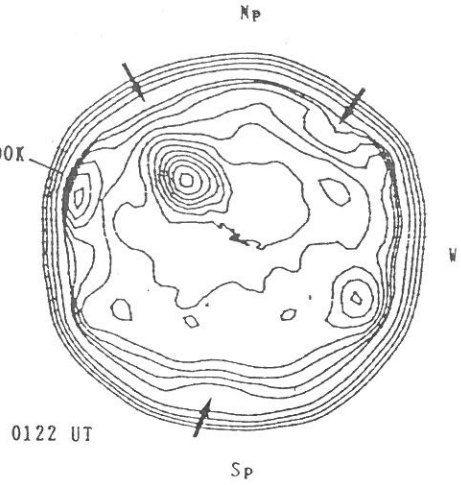
HIRAISO 32 GHz R-POL



HIRAISO 32 GHz L-POL



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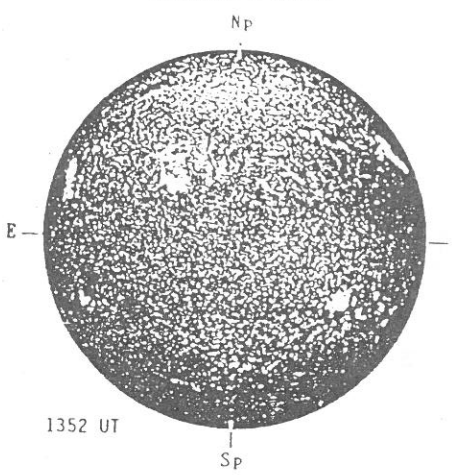
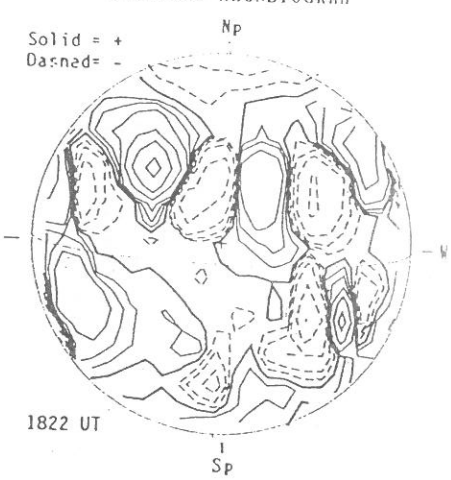


STANFORD MAGNETOGRAM



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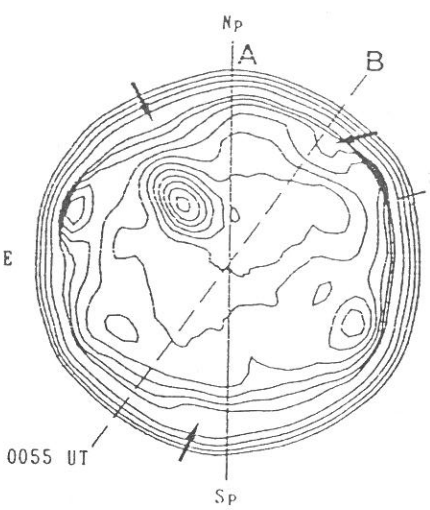

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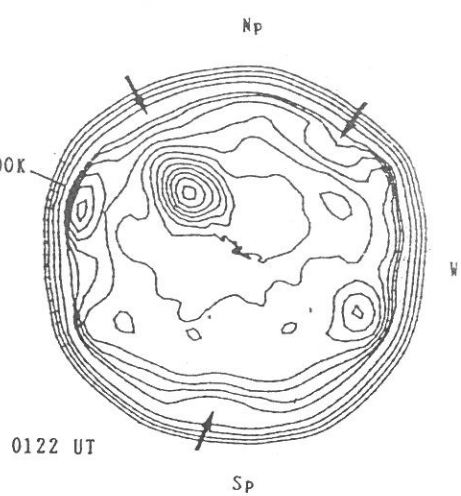

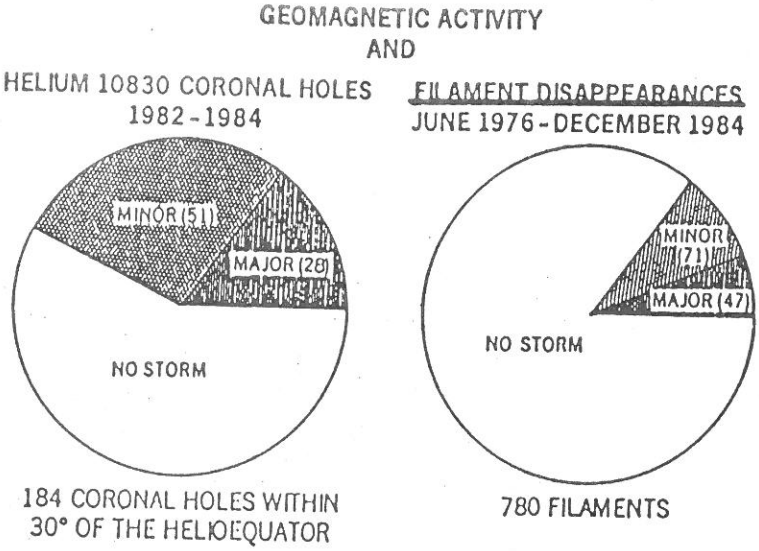

Fig. 6. Data from Solar Cycle 21 illustrating the poor correspondence of coronal holes near the helioequator with geomagnetic storms, and filament disappearances with geomagnetic storms.

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Solar Wind-Magnetosphere Coupling
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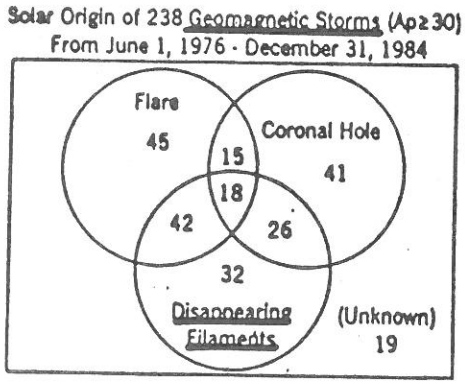

Fig. 7. A determination of the solar origin of the 238 minor and major geomagnetic storms which have occurred since the beginning of solar cycle 21 (June, 1976) up to December 31, 1984.

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"Solar Wind-Magnetosphere Coupling"
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