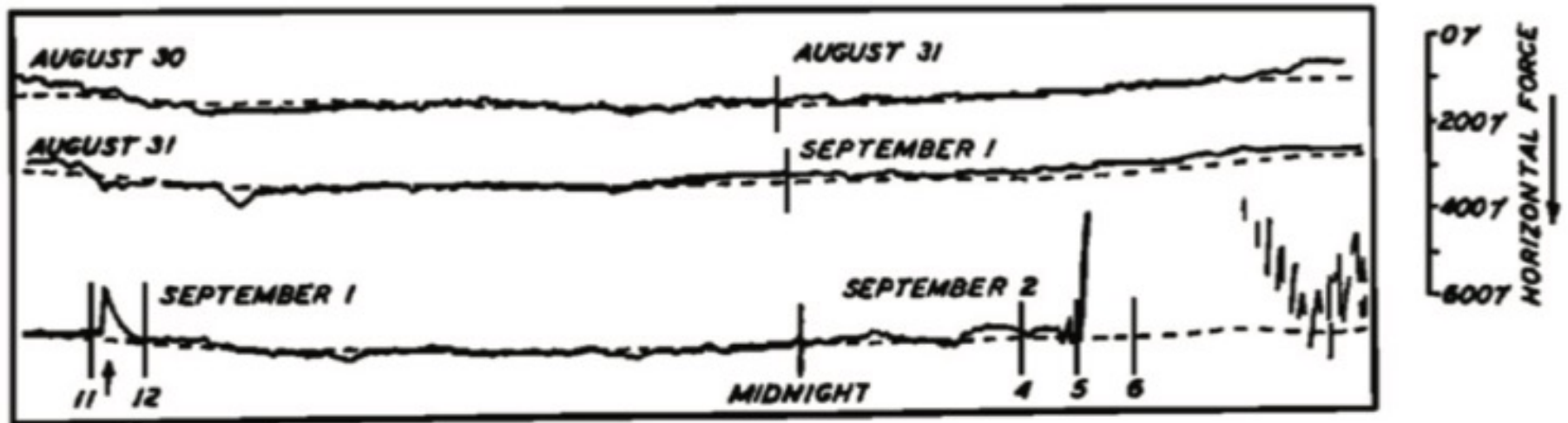


Two things learned about SFEs?

Hugh S. Hudson
U of Glasgow, UC Berkeley, WKU

What is an SFE?

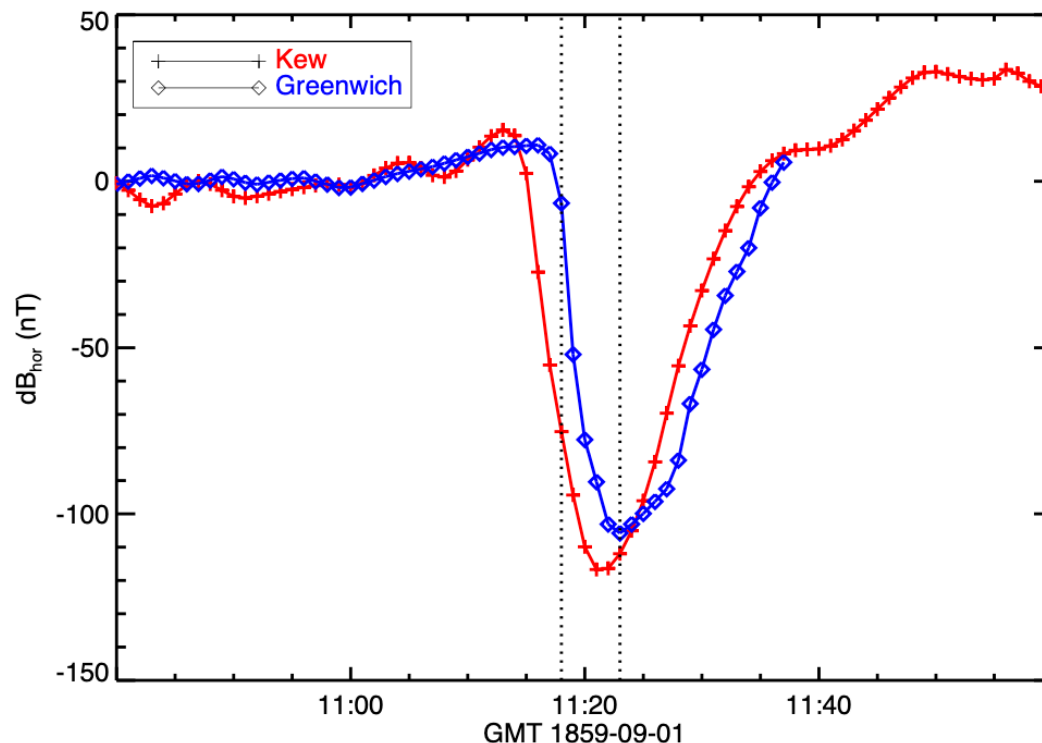
- “Solar Flare Effect”, a.k.a. “crochet”
- First example in the Carrington event



Three days in September 1859 via the earliest recording magnetometer

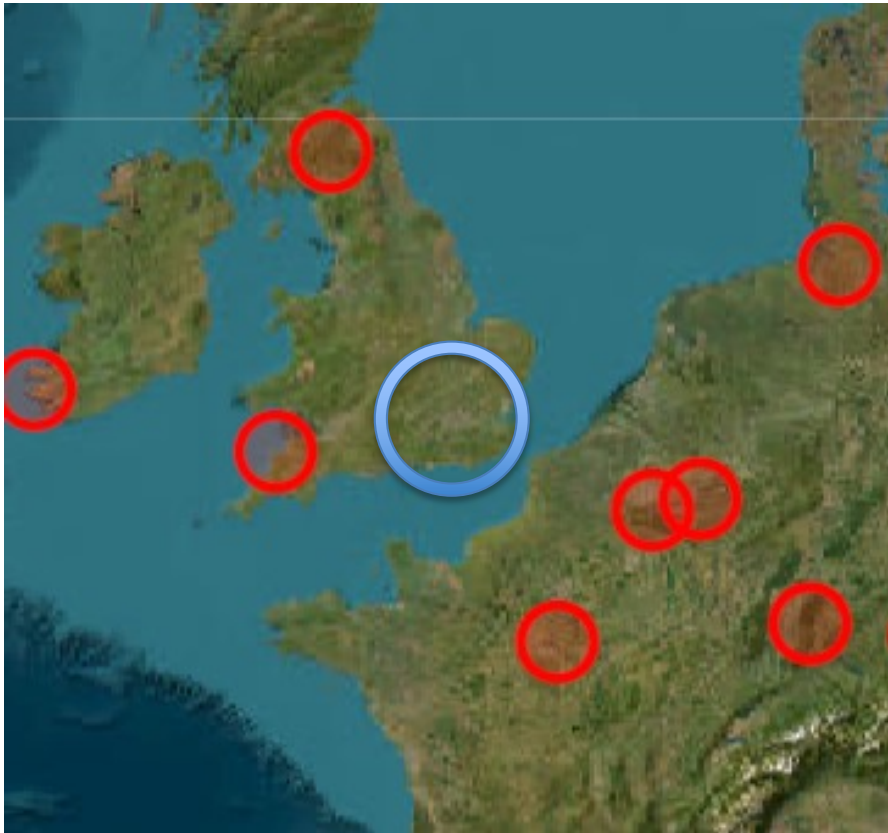
The original crochet/SFE

- The Carrington event had a well-observed SFE, with two sites (Kew and Greenwich)

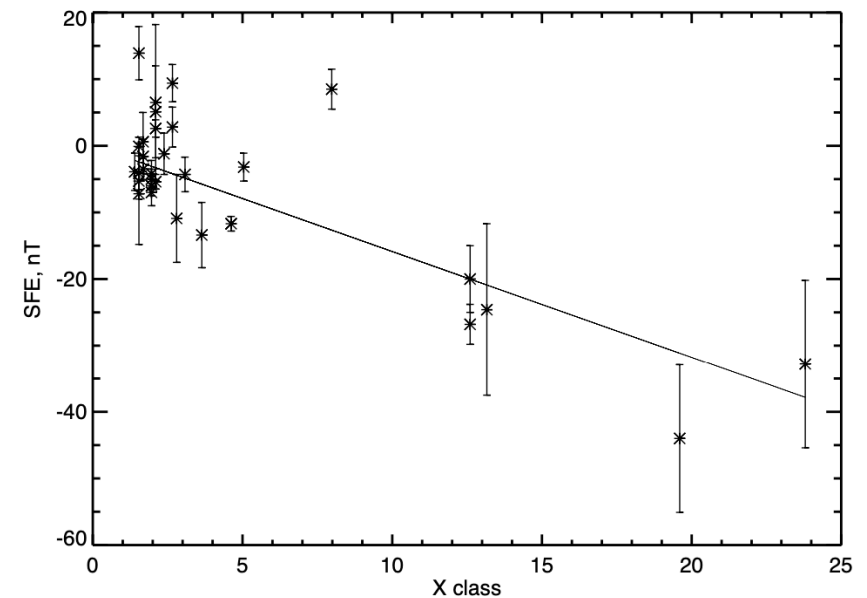


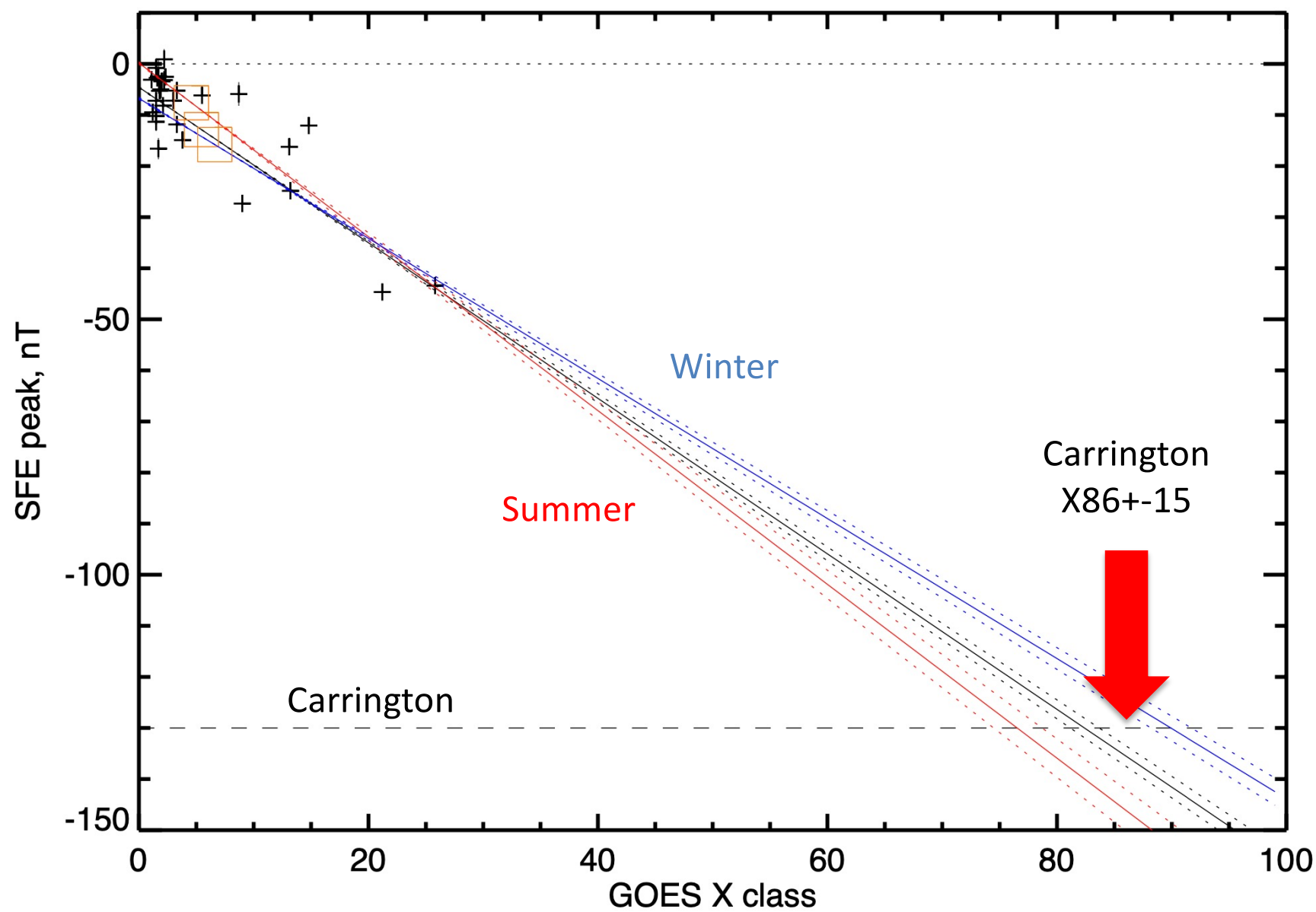
- SOL1859-09-01 (X86+15)
- Recent digitizations by Beggan et al. (2024)
- A 10% measure, but what about systematic errors?

Intermagnet near Kew/Greenwich

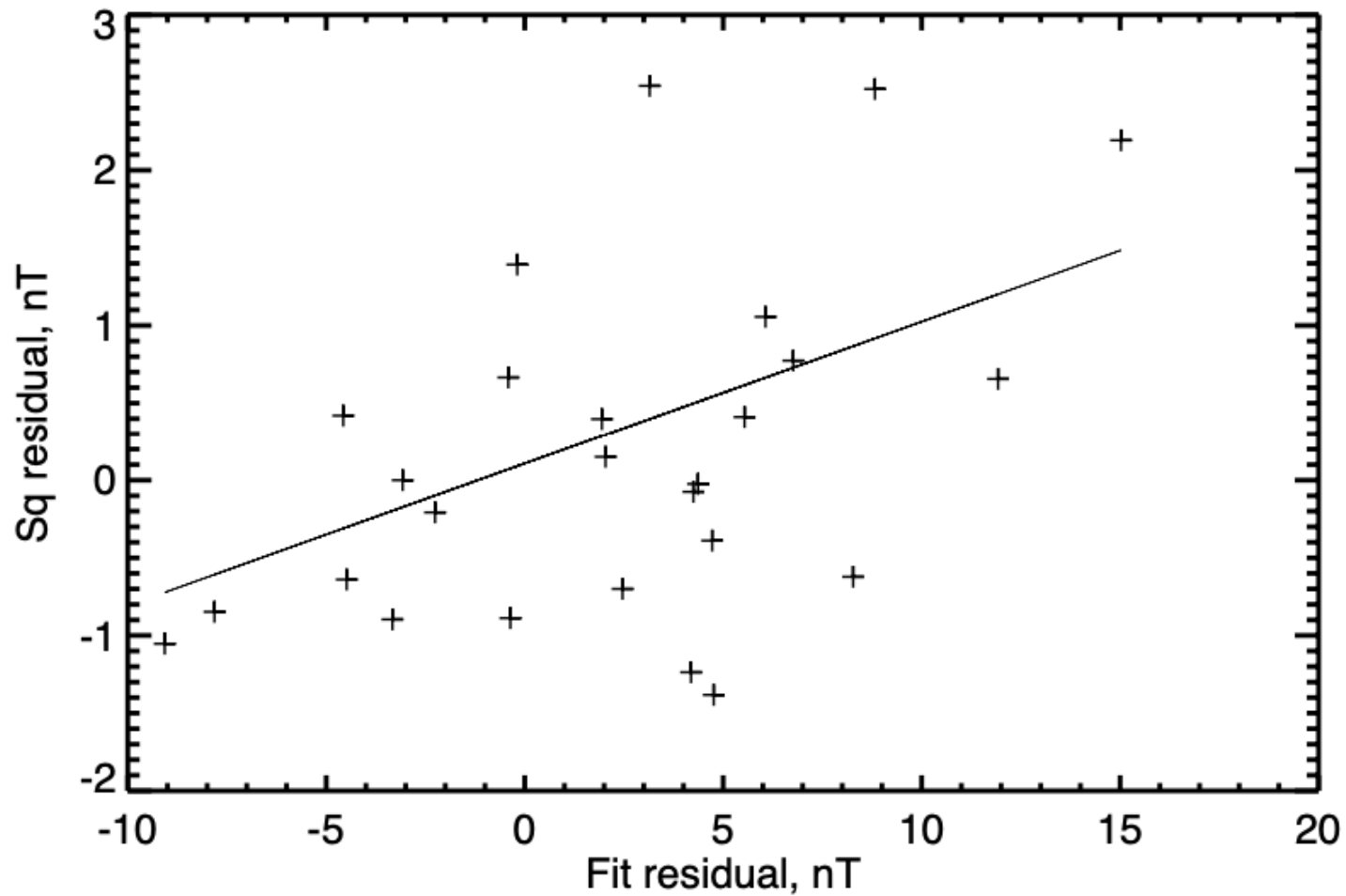


- The Hartland site (HAD, in the UK) is the closest geographical counterpart
- Note that the sampling is not optimal in the Nyquist sense
- HAD has observed about 40 X-class flares near local noon

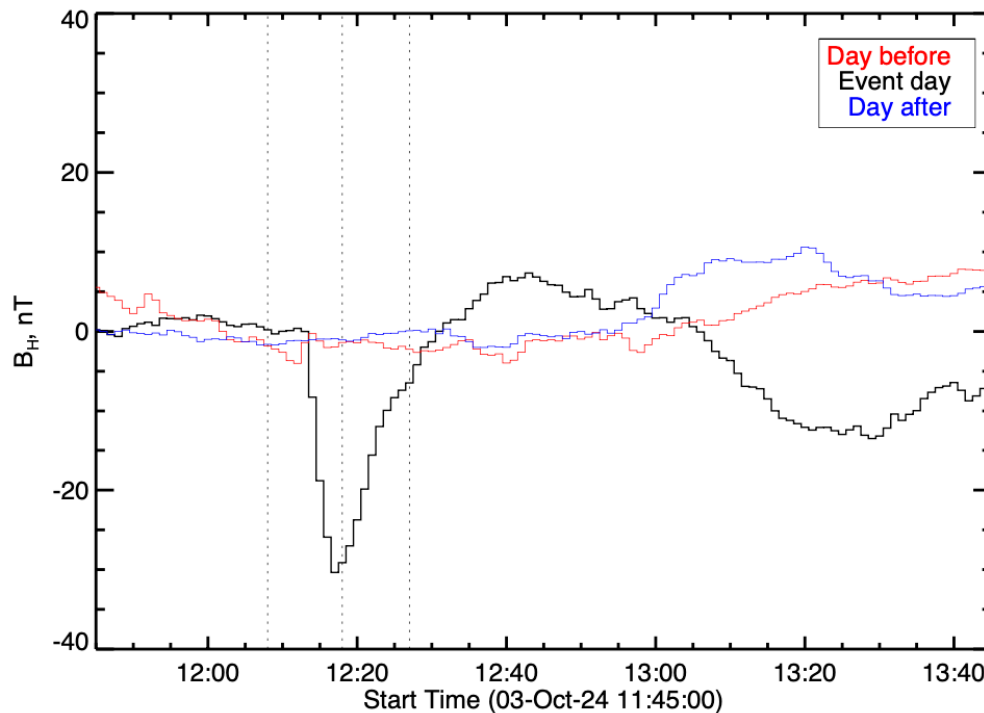




Sq dependence?



SFE mini-storm?



Variances of data prior to
and after event:

```
IDL> print,mean(mombef[1,*])  
1.76603
```

```
IDL> print,mean(momaft[1,*])  
5.65851
```

Conclusions

- 1) The SFE amplitude correlates with S_q
- 2) Disturbed conditions follow an SFE