

Addition of ROG Solar Images (1903-1942) to the UKSSDC database

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Overview:

- 1) Catalogue the ROG Solar Images (1903-1942) data set
- 2) Insert the catalogue into the UKSSDC data dictionary
- 3) Build a web page to make the catalogue publically available

- Historic solar images
- Acquired by the UKSSDC (UK Solar System Data Centre)...
- From the University of Cambridge on January 31st, 2008
- Thought to have been taken largely at the Royal Observatory, Greenwich (ROG)

- From:
 - 1903/05/19 until 1942/05/19

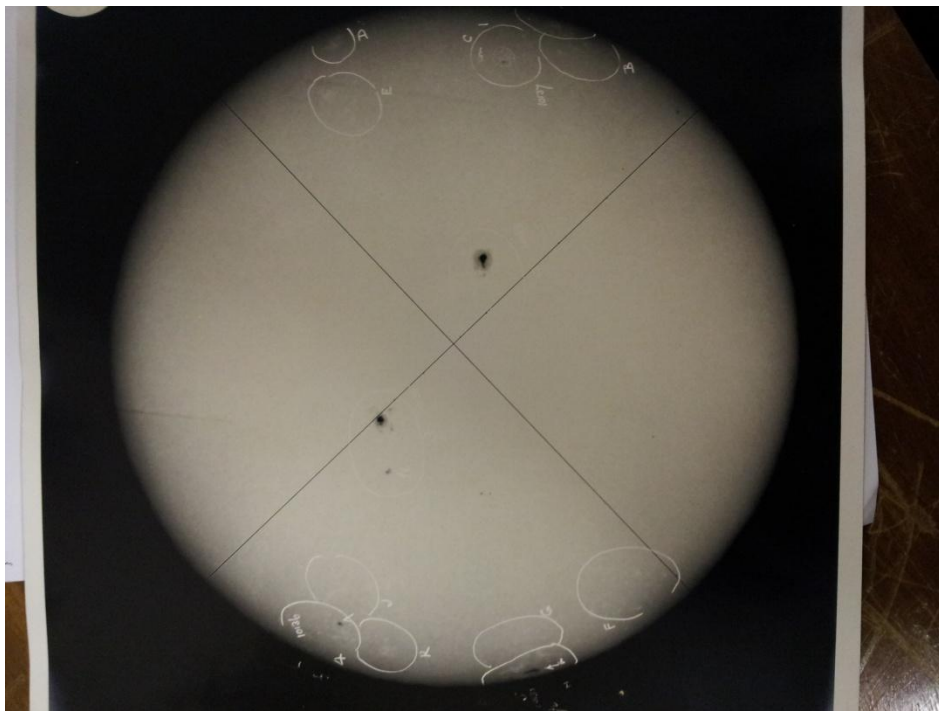
- Formats:
 - Glass plate
 - Paper print

- Filters:
 - Visible spectrum
 - Ca II K (3933.7 Å)
 - H α (6562.8 Å)

- Image types:
 - Disc
 - Limb (coronagraph image)
 - Disc and limb (superposition)
 - Time series (short term, specific events)

Paper

Visible
Disc



Ca II K
Disc



Glass

Ca II K

Disc

Limb

Disc and limb

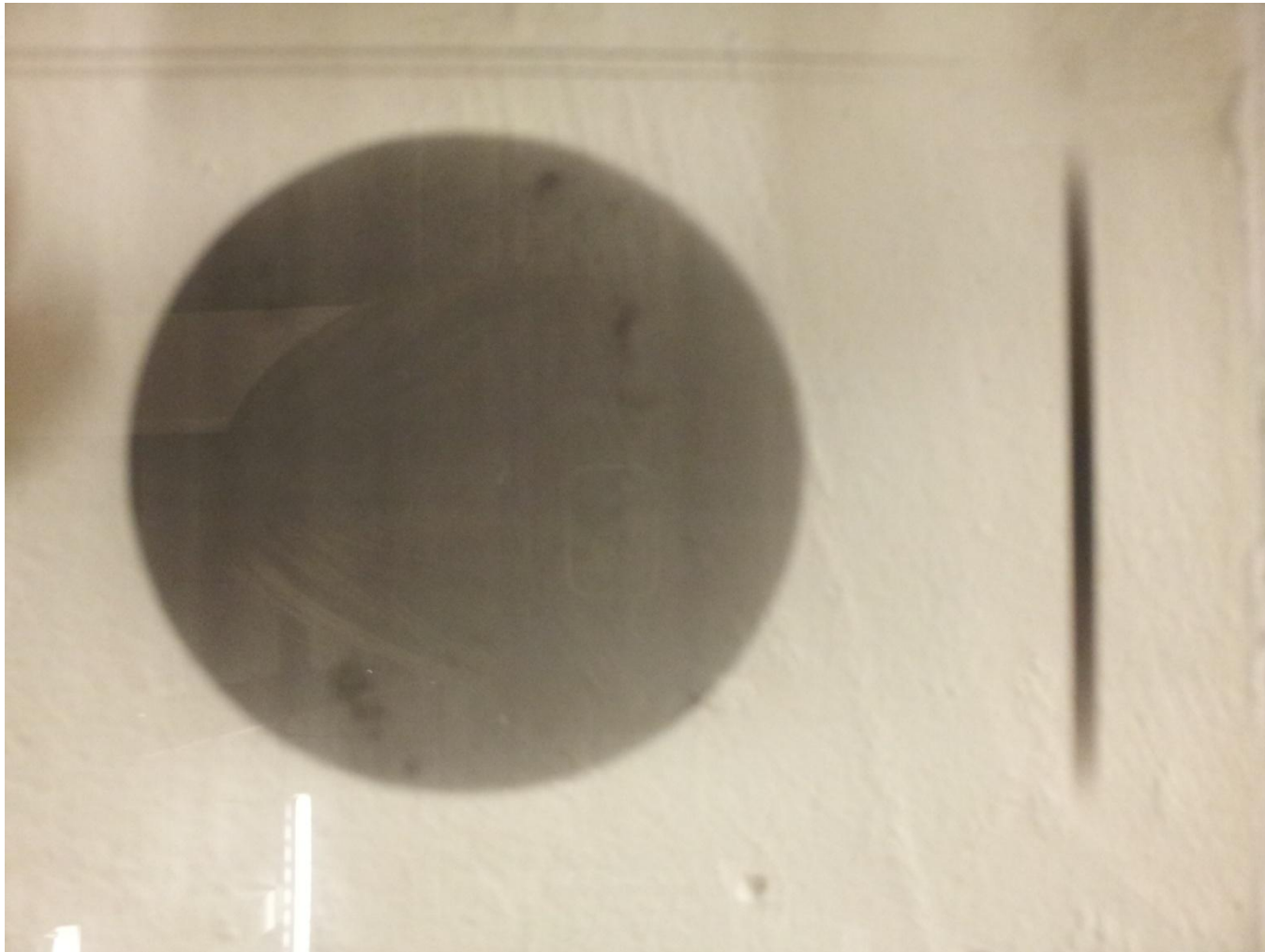
H α

Disc

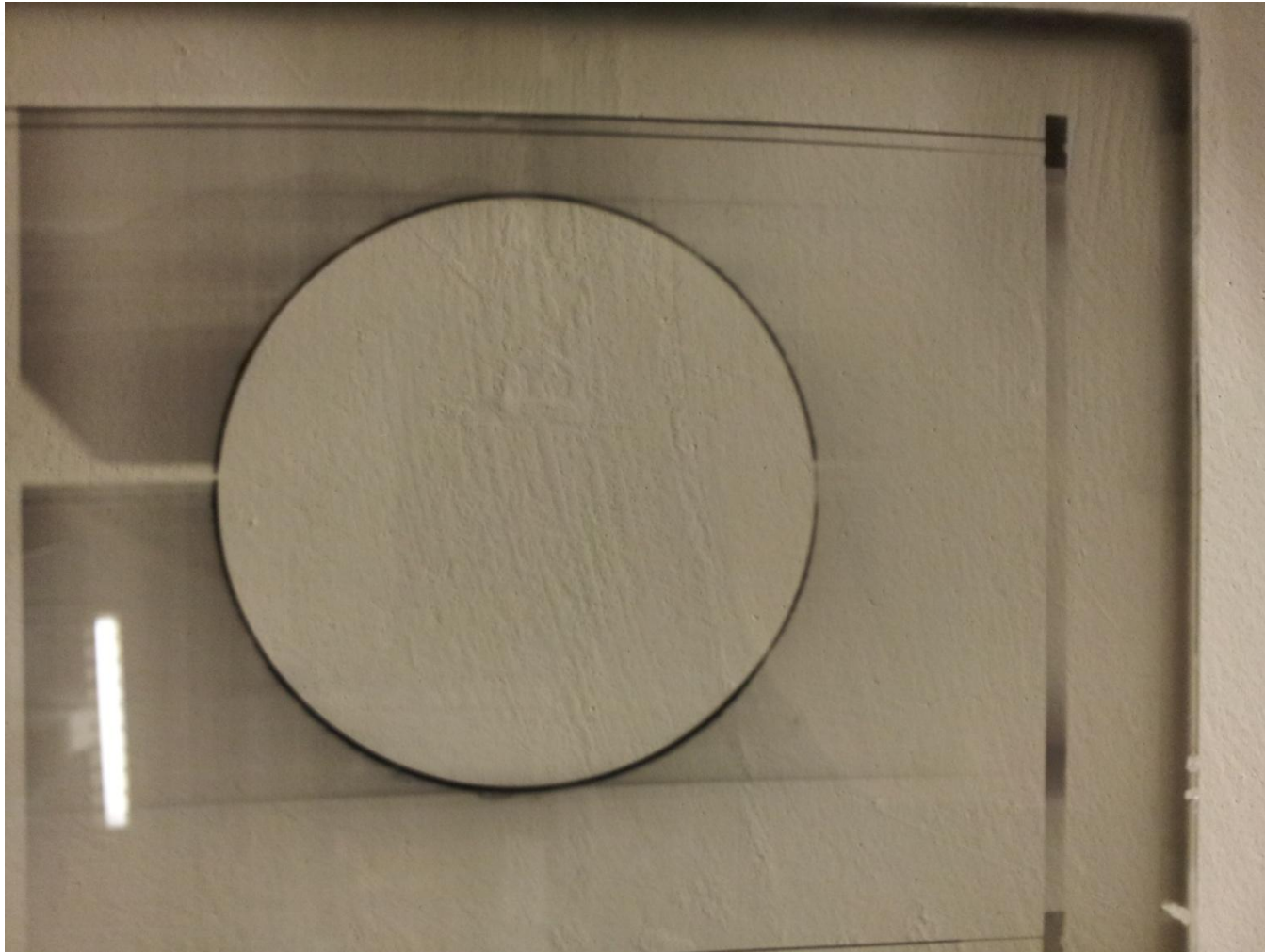
Limb

Time series

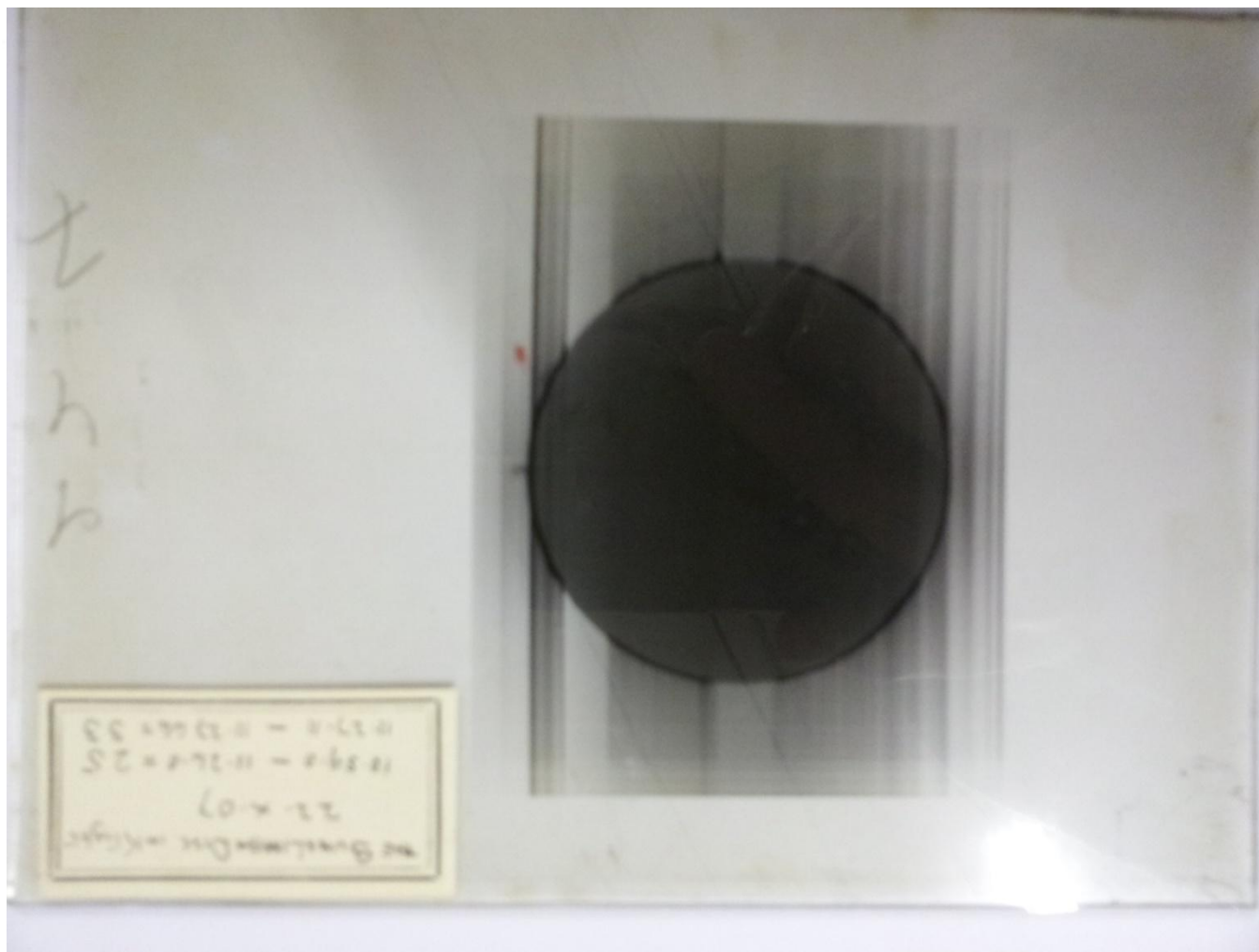
Glass: Ca II K Disc



Glass: Ca II K Limb



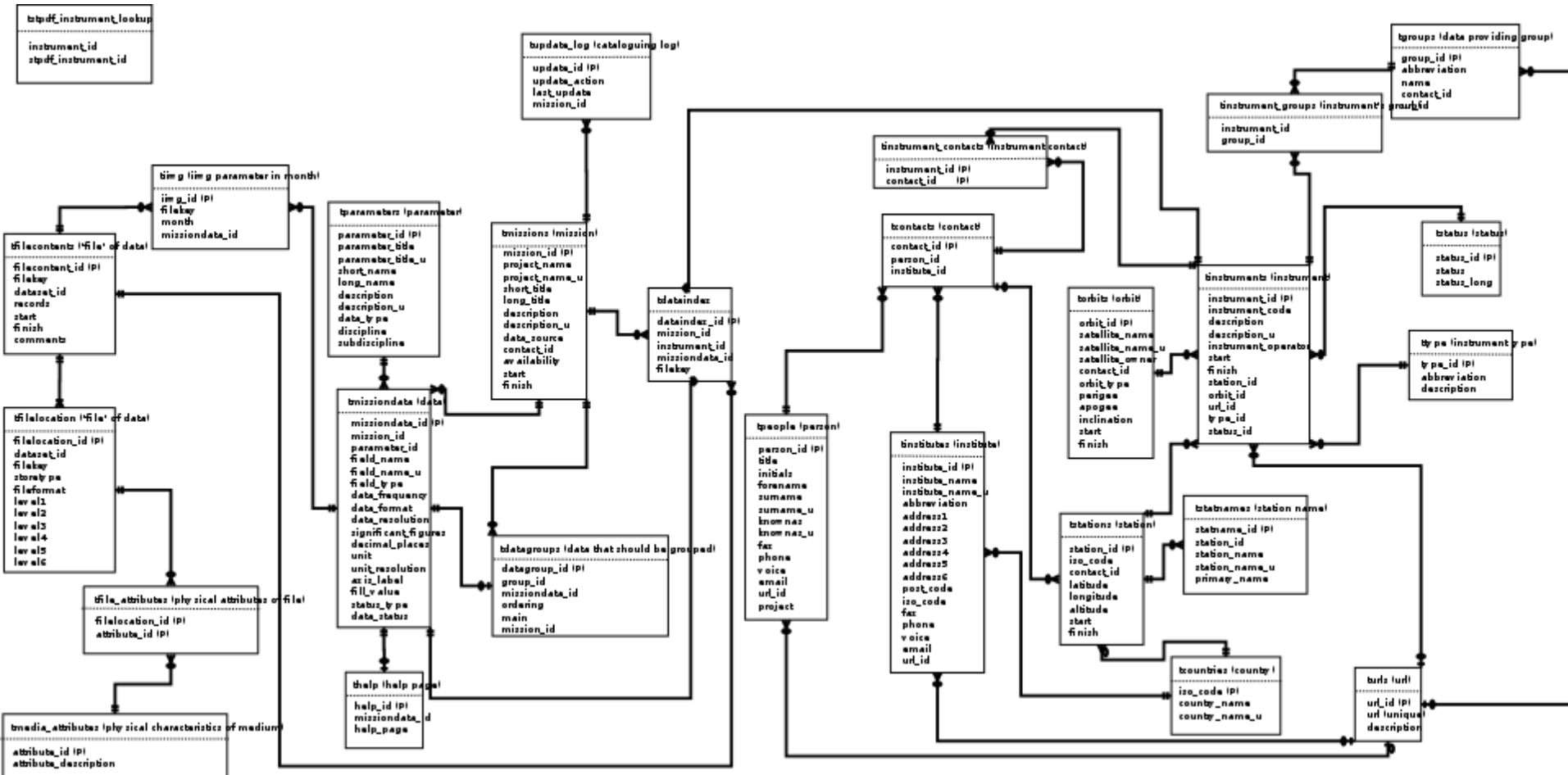
Glass: Ca II K Disc and limb



Physical images stored in the RAL Space cage



Availability information stored in the UKSSDC PSQL database



Web page

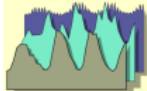
- Soon available through www.ukssdc.ac.uk
(currently on development server)
- Accessible by any UKSSDC member, who can...

Accessing the data

1. Browse availability online
2. Request appointment for physical images

OR

2. Request digital copies of a small selection of images



Royal Greenwich Observatory Images: Availability

The UKSSDC holds a physical archive of solar images 1903-1942. These images are believed to have been taken largely at the Royal Observatory, Greenwich. However, we cannot be sure that this is true for all of images.

The images are of different types, and are taken using different filters: this is summarized below:

1. **Disc:** Images of the solar disc. These are available in Ca II K light, H alpha light and across the visible spectrum.
2. **Limb:** Images of the solar limb (coronagraph images). These are available in Ca II K and H alpha light.
3. **Disc and limb:** These are the superposition of the above two images, and are available only in Ca II K light.
4. **Time series:** Some events of particular interest (E.g prominences and sun spots) have been captured several times over a short period, thus giving a depiction of their short term evolution. Images of this type are only available in H alpha light.

This page allows you to search the UKSSDC database for the availability of these images, by selecting from the following options:

Image Type Menu

Filter type Image type

Visible:

Ca II K:

H alpha:

Date Menu

Year Month Day

Start date:

End date:

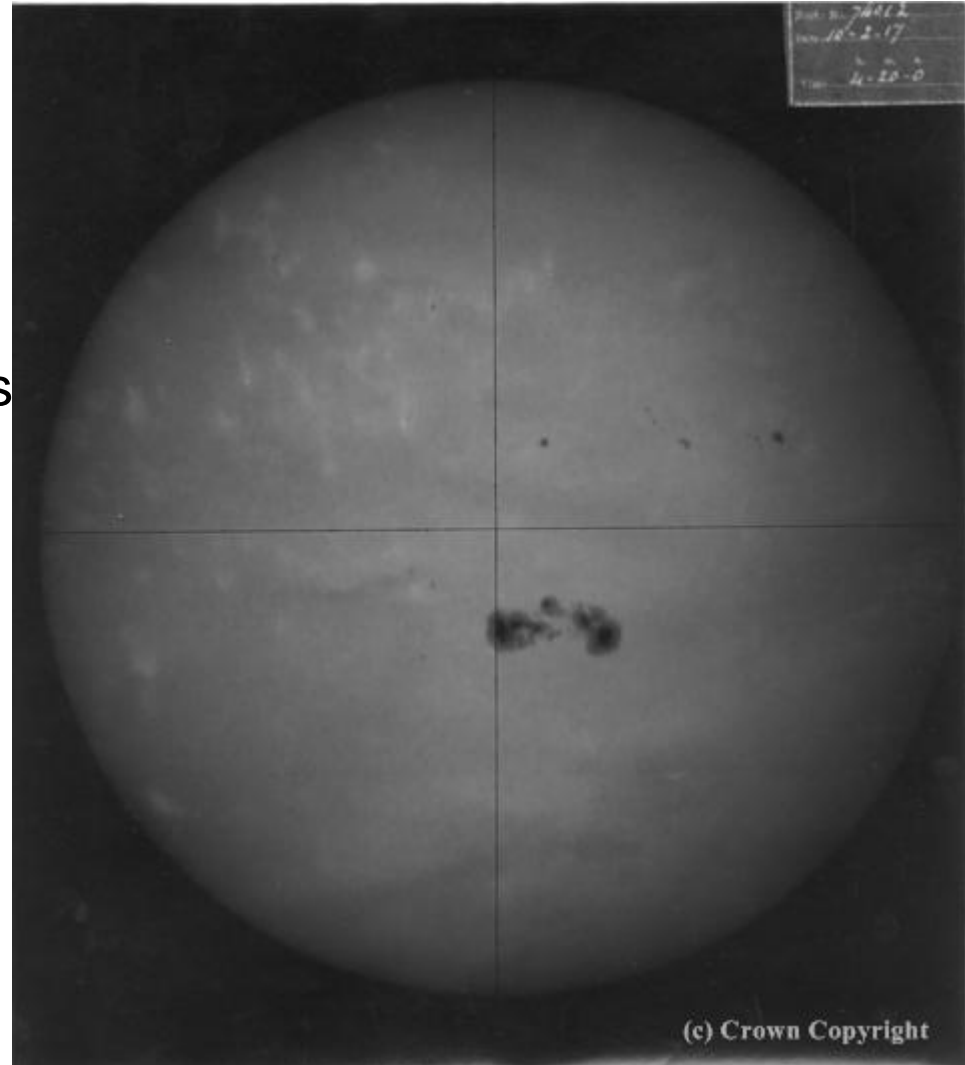


Description of solar activity over 1903 - 1942

- Climate change:
 - Comparison to historic weather reports
 - Links between solar activity and weather
- Solar cycle:
 - Images provide a high quality long-term description of solar activity
 - Changes in the 11yr solar cycle
 - Grand minima and grand maxima
- Other uses:
 - The availability will very soon become publically available
 - Other uses may become apparent (cf. *Old Weather*)

Old Weather

- Civilian project 'Old Weather' recovered weather observations made in Royal Navy ships log books
- The project came across a naked eye Sun spot observation on February 10th, 1917
- The ROG Solar Images confirmed this ->



- Another batch
 - Solar images in a London warehouse
 - Exact contents unknown
 - Eventually to be brought to RAL...
 - Archived, and data added to the UKSSDC data dictionary

- Digitizing
 - All these images should eventually be digitized
 - Big work load
 - Need funding and personal
 - Not in the immediate future