

## **SPINOR Winter 2006 Observing Plan**

### **Objectives**

1. Fix issues on 'the list' of deficiencies prepared by the observers
2. Perform photospheric quiet Sun observations using Fe 630.2nm, Fe 1564.8nm, Fe 525.0nm, Fe 524.7nm, and SrI 553.7nm (Plan B after sunspots refused to materialize)
3. Perform chromospheric network observations using the IRT 849.8nm, 854.2nm, Fe 630.2, Fe 617.3nm and Fe 1564.8nm.

### **Visiting Observers:**

David: 5 March – 13 March

Juan: ????

Phil: ????

Anna: ????

### **Schedule:**

**Noon 6 March - noon 11 March: Engineering**

**Noon 11 March – noon 21 March**

Photospheric observing run

**Noon 21 March – Noon 31 March**

Chromospheric observing run

**Noon 31 March – COB 31 March**

### **Engineering Time:**

Locate all SPINOR components needed for observing runs

ASP cameras

Camera cables

Mount for Sarnoff camera

Jack stands for Pluto and Rockwell cameras

Modulator

Parallel cables from parallel panel to cameras

BNC cables for camera strobes

Install computers

Hagrid (Sarnoff) left rack below oscar single tape drive

Hogwarts(Pluto) left rack below Hagrid

Harry(Rockwell) on table inside HSG

Rename all the computers and set to NSO 146.5.2.17x addresses

Install cameras – temporary location initially with ASP towards 'T' end

Run cables through floor trays

Re-seat boards in cookie, bert, ernie

Debug EASP items on 'the list'

If time permits set up for following runs

### **Set Up General:**

\*Once a camera is working, align rotation of half wave retarder using polarizer in front of slit oriented horizontally or vertically. Tune half wave plate rotation to extinguish one beam.

\*Check AO relay optics by moving the polarizer in front of AO system and repeating this analysis

\*UBF set up for H- $\alpha$ . Run asynchronously at a leisurely cadence < 1/scan position

\*Keep G-band set up as it is unless AO analysis shows dichroic BS is a problem

## Photospheric setup:

See "PlanB Setup" on the SPINOR web site.

\* The Pluto camera is not used. The Hogwarts/Pluto computer can remain powered off during this run.

\*Photospheric observations will run at 20Hz (Rate of 3).

\*The number of frames will most likely be 64 or 8 accumulations. These values will have to be set for all computers, Harry, Hogwarts, Hagrid, bert, and ernie. A SaveSettings can be used to capture these settings for bert and ernie.

\*Grating is 308.571/mm at an incidence angle of 55.5°

\*Slit width is 50µm or 0.376 arc second spatial slit width

\*Anchor wavelength is 525.0/524.7 on the Sarnoff camera. Use the 1219mm focal length lens.

0.37 arc second spatial pixel width, 31.4mÅ pixel size, 44.4mÅ spectral resolution RSS, and 16.0Å spectrum length. Angle of reflection 52.74°

\*ASP cameras detect 630.2nm and 553.7nm. Use visible AR coated 1000mm focal length lens.

630.2: 0.45 arc second spatial pixel width, 23.5mÅ pixel size, 37.7mÅ spectral resolution RSS, and 6.0Å spectrum length. Angle of reflection 47.02°

553.7: 0.45 arc second spatial pixel width, 21.4mÅ pixel size, 41.0mÅ spectral resolution RSS, and 5.5Å spectrum length. Angle of reflection 45.53° (mean 46.27°)

\*Rockwell camera at 1564.8nm. Use IR AR coated 1000mm focal length lens.

0.41 arc second spatial pixel width, 151.0mÅ pixel size, 200.7mÅ spectral resolution RSS, and 155.5Å spectrum length. Angle of reflection 38.64°

## Chromospheric setup:

\*See "Chromospheric Setup" on the SPINOR web site.

\*Grating, angle of incidence and Rockwell camera at 1564.8 unchanged

\*Slit width is 50µm or 0.376 arc second spatial slit width

\*Chromospheric observations will run at 20Hz (Rate of 3)

\*The number of frames will most likely be 128 or 16 accumulations. These values will have to be set for all computers, Harry, Hogwarts, Hagrid, bert, and ernie. A SaveSettings can be used to capture these settings for bert and ernie.

Use the shorter wavelength NSO IRT pre-filter for both bert and ernie. Set up bert for straight through 849.8nm and use pick-off mirror for ernie 854.2nm. (Same arrangement as November 2004, Arpil 2005). Use NSO 1219mm fl camera lens.

0.370 arc second spatial pixel width, 24.6mÅ pixel size, 60.5mÅ spectral resolution RSS, and 6.3Å spectrum length. Angle of reflection 49.23° @854.2, 48.52° @849.8

\* Set up Pluto camera for Fe 617.3 Use visible AR coated SPINOR 1000mm camera lens.

0.274 arc second spatial pixel width, 34.7mÅ pixel size, 52.8mÅ spectral resolution RSS, and 17.0Å spectrum length. Angle of reflection 44.40°

\*Set up Sarnoff camera for Fe 630.2nm. Use visible AR coated SPINOR 1000mm lens.

0.370 arc second spatial pixel width, 44.2mÅ pixel size, 59.5mÅ spectral resolution RSS, and 22.6Å spectrum length. Angle of reflection 47.0°

## Data:

ASP data go onto 8-mm tape. Tapes go to the scientists as they leave.

Slit jaw images go to DLT during the run. DLTs leave with associated scientists. Tapes will be returned to NSO once data have been archived at HAO.

Harry, Hagrid, and Hogwarts send data to their local disc drives in real-time. Scientists will copy data from Harry, Hagrid, and Hogwarts to their own USB disc drives. They must do this after observing, not to interfere with data collection. Scientists should remove data from the D:/ drives to leave at least 100GB free for the next day's observations.

## **Packing:**

Left at DST:

- The Sarnoff camera
- Hagrid computer with mouse, keyboard, and LCD

### **Packed for Boulder:**

- Rockwell Camera
- Rockwell Camera Power supply
- Funnel with metal stem
- HAO small dewar
- Power supply to camera cable
- Power supply AC cable
- One 3m CameraLink cable
- Harry computer
- Harry AC power cable
- Harry mouse
- Harry keyboard
- Harry mouse pad
- Harry LCD monitor
- LCD analog cable
- LCD AC power cable
  
- Pluto Camera with protectors on fiber optic inputs and C-mount CCD cover
- Pluto Camera Power supply
- Power supply to camera cable
- Power supply AC cable
- One 10m single strand fiber optic cable with end protectors
- Two 10m double strand fiber optic cables with end protectors
- Hogwarts computer with protectors on fiber optic inputs
- Hogwarts AC power cable
- Hogwarts mouse
- Hogwarts keyboard
- Hogwarts mouse pad
- Hogwarts LCD monitor
- Digital cable for LCD
- AC power cable for LCD
- ThorLabs 1-inch and 2-inch filter mounts with 'C' adapters

Sarnoff camera Thorlabs filter holder. Leave scratched C mount to C mount ring on the camera. The red CCD cover is taped to the mount.

Take extreme caution with the five fiber optic cables connected to the Pluto camera. With the Pluto/Hogwarts boxes, there are three Ziploc bags for the fiber optic cables. The size of the bags indicates the size of the coils for the fiber optic cables. I recommend coiling them one at a time, starting with the single strand cable, then the double strand cables. If you know the audio technician over and under technique for coiling cables, use it (ask Chris). With the Pluto box there is a bag of cable end protectors for the cables, camera, and computer.

Before disconnecting the parallel cables attached to the new shiny panel with the eight 25-pin "D" connectors, please label both ends. All these cables can remain at the DST in the SPINOR cable box or wherever. Before disconnecting camera strobe cables, please label both ends, "ASP photospheric", "ASP chromospheric", "Rockwell", and "Sarnoff/Pluto". All these cables can remain at the DST. This might be a good cloudy day project.

- End-