

1.2.1.3 Contribution of flare-like events on all scales

Description of the objective:

- Statistical study of more than 70k flare-like events on all scales that are expected to be seen during the NMP for better defining the flares' distribution that possibly contains enough energy to heat the corona (Parker 1983; Hudson, 1991).
- Reduce the lower energy limit of detectable flares.
- Understand the mechanisms responsible for producing nanoflares (field line shear, braiding, coronal tectonics, (Priest, 2003)).
- Search for small 3He-rich events close to the perihelion.

- **SPICE** (updated by Alessandra Giunta 01/12/2015):
 - Target: Quiet Sun, small Active Regions
 - Observing mode: Dynamics, Waves, 30" Wide Movie
 - Slit: 2" for Dynamics, 4" for Waves, 30" for Wide Movie
 - Exposure time/cadence and number of X positions: 5 s, X=128 for Dynamics; 5 s, X=720 for Waves; 5 s, X=120 for 30" Wide Movie (Fix Mirror for Waves and 30" Wide Movie, time series, multiple images)
 - Field of View: 4'x11' for Dynamics, 48" x11' for Waves; 60" x14" for 30" Wide Movie
 - Number of repetitions of the study: 10 for Dynamics followed by 5 for Waves and 1 for 30" Wide Movie
 - Observation time: 1.8 hours for Dynamics (0.2 hours per study), 5.25 hours for Waves (1 hours per study), 0.175 hours
 - Key SPICE lines to be included: H I 1025 Å, C III 977 Å, O VI 1032 Å, Ne VIII 770 Å, Mg IX 706 Å, Si XII 520 Å (x2) – 10 lines (4 profiles and 6 intensities) for Dynamics; C III 977 Å, O VI 1032 Å, Ne VIII 770 Å- 3 lines for Waves; C III 977 Å, O VI 1032 Å – 1 or 2 lines for 30" Wide Movie – also flare lines included: Fe XVIII 975 Å, Fe XX 721 Å
 - Observing window preference: High latitude when possible. Perihelion is good for high resolution.
 - Other instruments: EUV/FSI and HRI for context imaging; PHI for magnetic field structure; METIS for solar wind mapping. **STIX**.
 - Comments:
 - The choice of lines, and also the number of intensities and profiles, is flexible, although the sum of the intensities and profiles is constrained to a maximum (e.g 15 for composition mapping). While varying the number of intensities and profiles, within the maximum, has no effect on the duration of the study, it will have an effect on the telemetry.
 - Possible binning on Y direction (groups of 4 pixels)