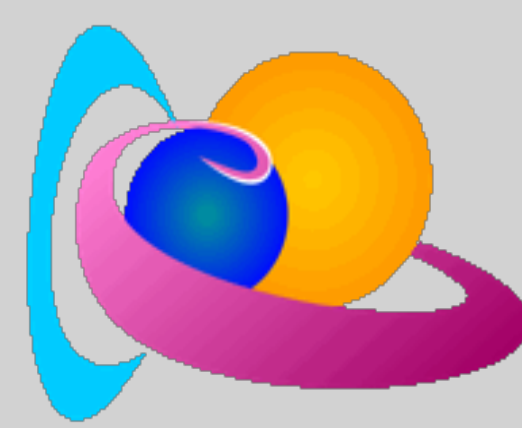


Viewpoints of space weather based on current image data



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Main goal of the project

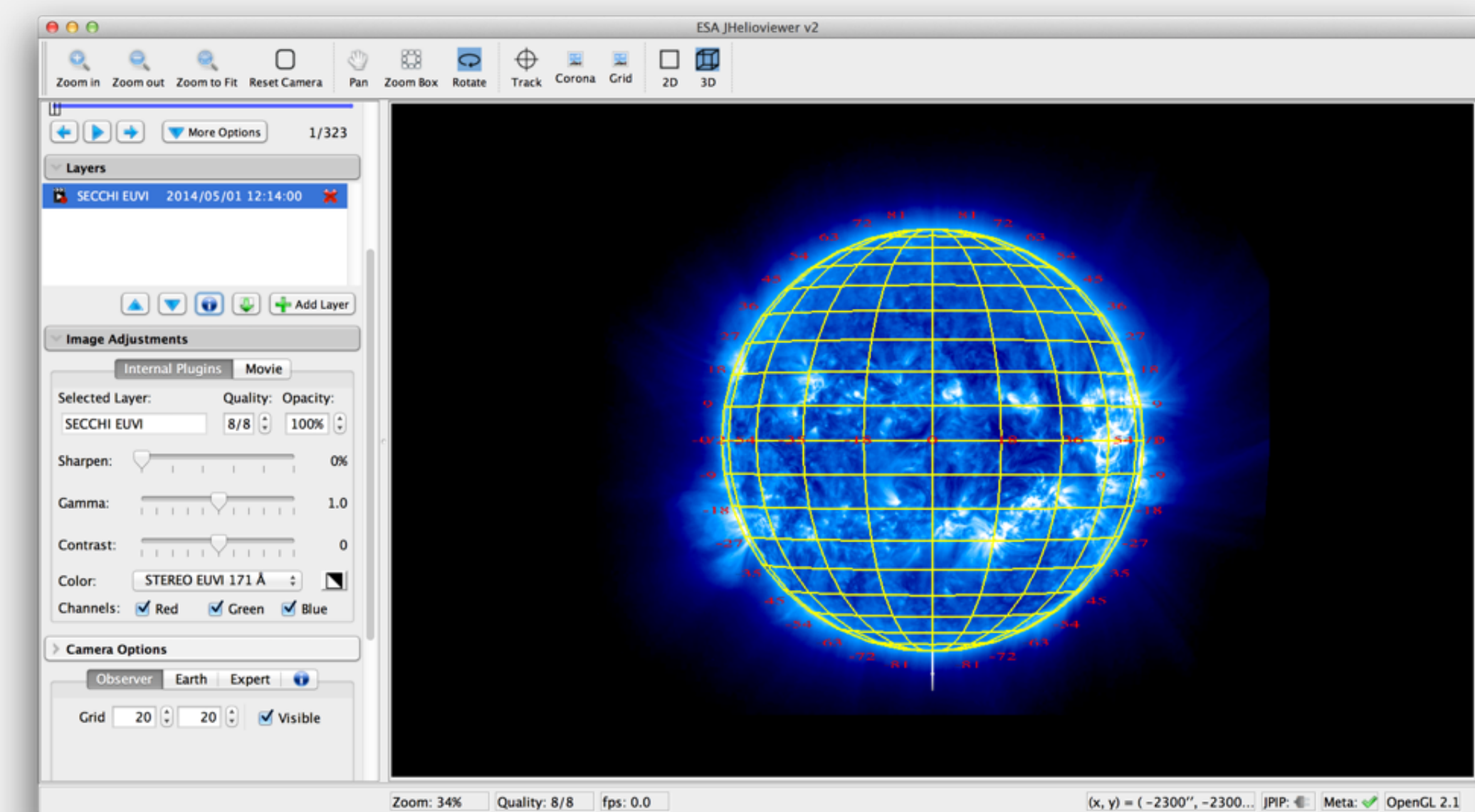
Upcoming deep space missions exploring the inner heliosphere, such as Solar Probe and Solar Orbiter, will have much more rapidly changing viewing perspectives as what we are used to with the STEREO spacecraft. Coalignments with the Earth and with each other, as well as quadratures and oppositions will quickly follow each other. Science planners want to know where active regions will be in say a few days from now as seen from the perspective that Solar Orbiter will have at that time. We combined several recently developed services into a tool that allows to see how the Sun would look at a given location and time interval by properly reprojecting the most current data, from wherever it was taken. The application of such a tool goes beyond the science operations of Solar Orbiter and is also relevant for science analysis. (e.g. space weather forecasting).

Tools used

- Development version of JHelioviewer (2) /Helioviewer(3) services (part of the recent developments of Space Weather Helioviewer(4)).
- Observation geometry software package that was expanded to allow requests over the network, developed at ROB (1).

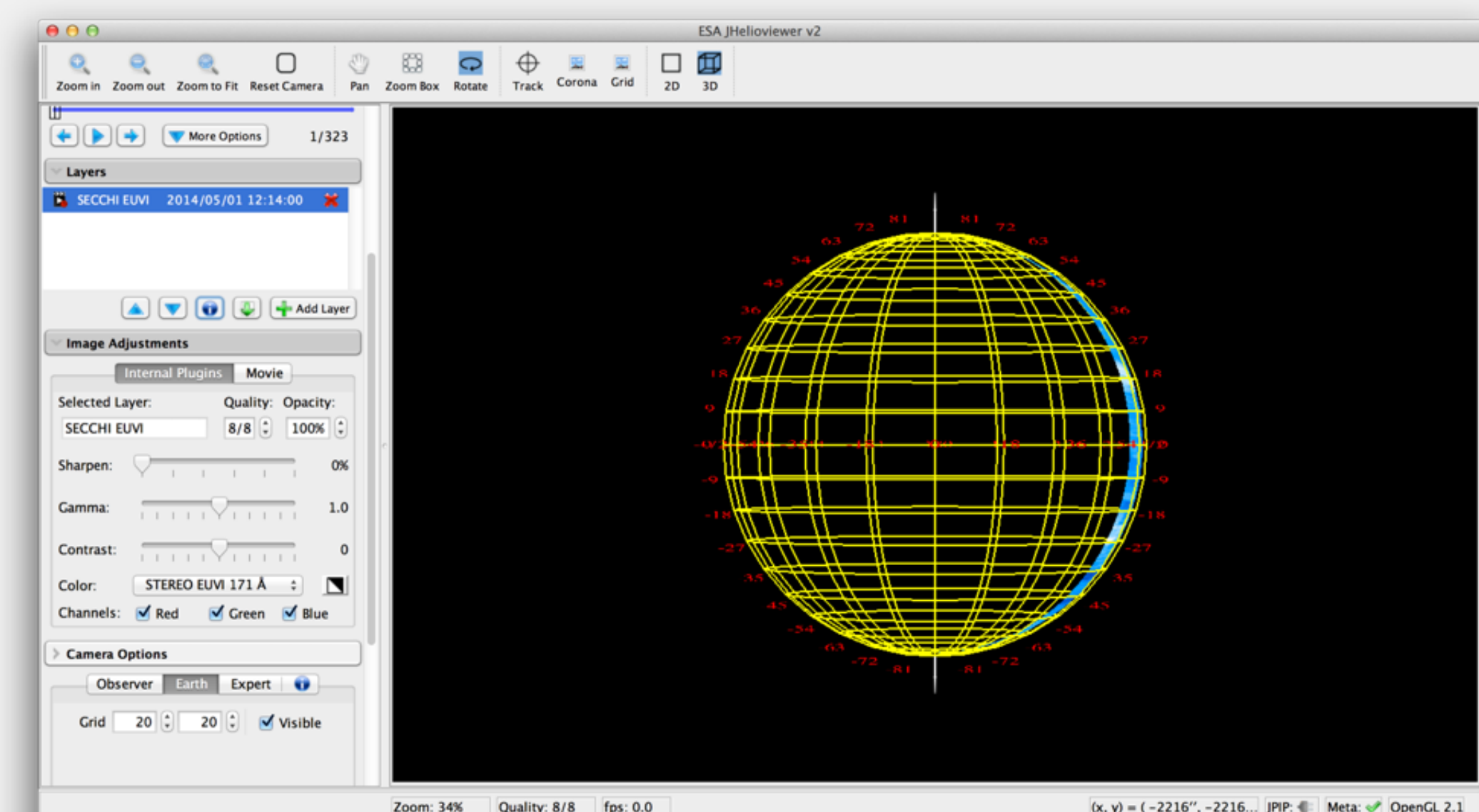
Camera Mode: Observer

- Camera follows the timestamp and location of the current image of the active layer.
- Additional display of grid possible, projected as seen from the current observer.
- Relative rotations and zooming possible from the current viewpoint. Reset with reset camera.



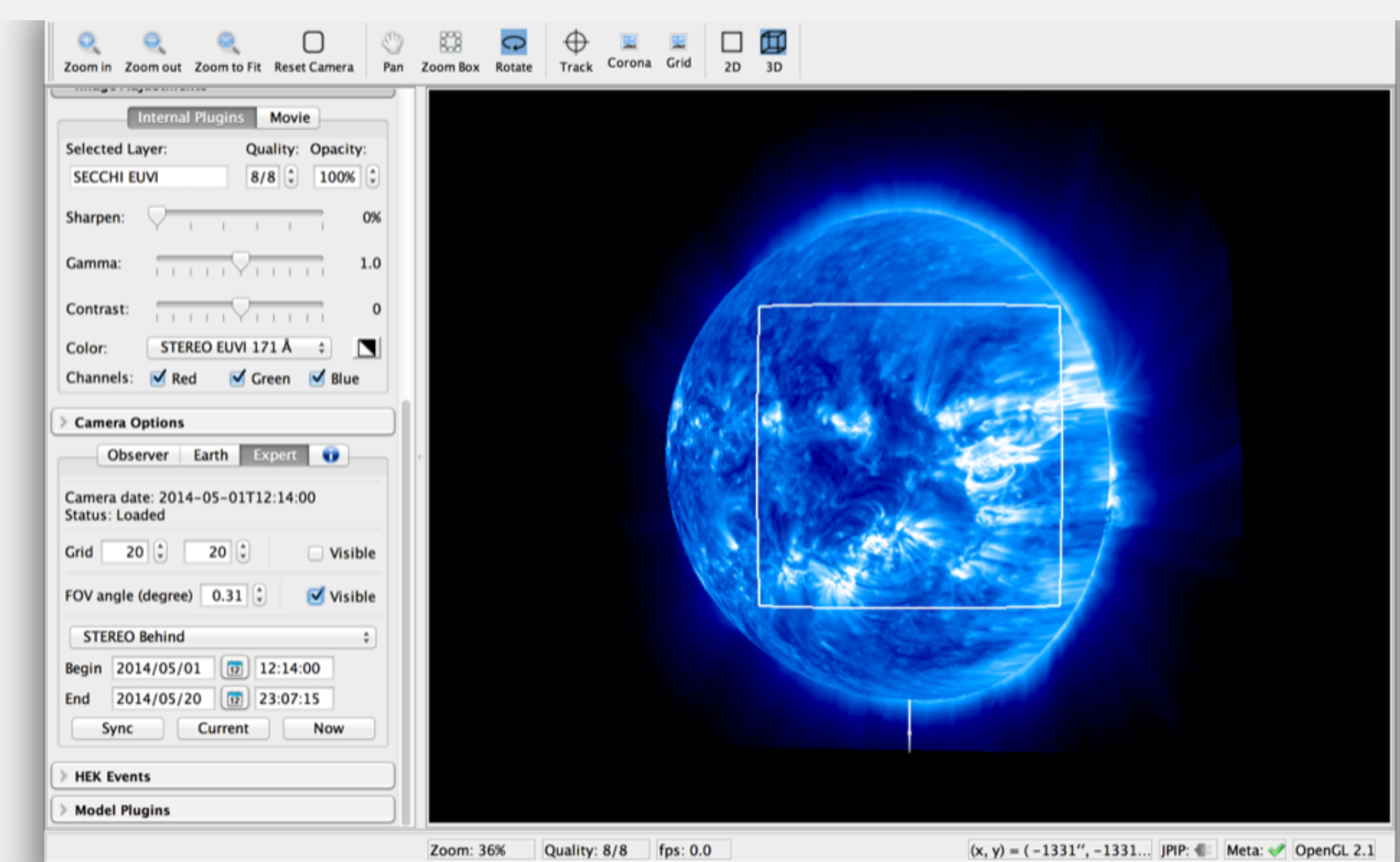
Camera Mode: Earth

- Camera follows the timestamp of current image and location of earth at given time.
- Additional grid possible, projected from the current earth.
- Relative rotations and zooming possible from the current viewpoint. Reset with reset camera.



Camera Mode: Expert

- Camera follows the timestamp interpolated between the date range of the active layer and the chosen date range (by default those are the same).
- Possible to choose a target.
- Hotkeys to set date range.
- Possible to set the FOV angle from the current observer at the given time range.
- Projects the FOV rectangle on the data available.
- E.g. project the latest available images 4 days in the future to see how the FOV of a given instrument would look.



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References & affiliations

- (1) Royal Observatory of Belgium
- (2) www.JHelioViewer.org
- (3) www.HelioViewer.org

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