

WP10 Virtual Access

Forum on Telescopes & Databases, November 2020

5 data archives

- Hinode Science Data Centre Europe (Hinode SDC), UiO
- Belgian Web Incessant Screening for SDO Mission (BE-WISSDOM), ORB
- Stockholm SST Archive, SU
- IBIS Data Archive (IBIS-A), INAF
- GRIS Data Archive, KIS

Hinode Science Data Centre Europe (UiO)

- Hinode
- IRIS
- Numerical simulations (Bifrost, **SOLARNET**)
- **SST (Oslo/Lockheed campaigns)**
- **ALMA**
- **New search interface**
- **Ingestion of events from HEK**
- **Detect spatial/temporal overlap**



Welcome

Welcome to the Hinode Science Data Centre Europe, a joint project between Norway and the European Space Agency (ESA). The data centre is run by the Institute of Theoretical Astrophysics at the University of Oslo on behalf of the Norwegian Space Centre (NSC).

Hinode (Sunrise in Japanese) is a project to study the Sun, led by the Japanese Aerospace Exploration Agency (JAXA) in collaboration with NASA, the Science & Technology Facilities Council (STFC), and the European Space Agency (ESA). Hinode is equipped with three solar telescopes (EIS, SOT and XRT), and was launched from Uchinoura Space Center on 22 September 2006 at 21:36 UT.

We now have IRIS level 2 data!

This means we are no longer a single-mission archive. The process of incorporating IRIS data into the archive has been an eye-opener – we think we have learned a lot from the many mistakes that became obvious during the process. The experience will be very useful for the future inclusion of other solar observations in the archive.

We now also have [BIFROST simulation data, with associated radiative transfer products](#)

There is another IRIS archive at [Lockheed Martin Solar and Astrophysics Laboratory \(LMSAL\)](#), which we think has some nice features that we hope to incorporate in our archive at some point. For details about the IRIS mission, go to [iris.lmsal.com](#).

Feel free to go straight to our [search page](#)

If you wish to be kept informed about future developments and improvements at the Hinode Science Data Centre Europe, please subscribe to our [email list](#). You may also want to:

- Check our [web statistics](#)
- Take our [user survey](#)
- Read about the release of [version 1.9](#)

When you publish your work on Hinode data, we would like to ask you to acknowledge the Hinode mission using one of the two following texts:

- *Hinode* is a Japanese mission developed and launched by ISAS/JAXA, with NAOJ as domestic partner and NASA and STFC (UK) as international partners. It is operated by these agencies in co-operation with ESA and NSC (Norway).
- *Hinode* is a Japanese mission developed and launched by ISAS/JAXA, collaborating with NAOJ as a domestic partner, NASA and STFC (UK) as international partners. Scientific operation of the Hinode mission is conducted by the Hinode science team organized at ISAS/JAXA. This team mainly consists of scientists from institutes in the partner countries. Support for the post-launch operation is provided by JAXA and NAOJ (Japan), STFC (U.K.), NASA (U.S.A.), ESA, and NSC (Norway).

See also the NAOJ page with [instructions for Hinode data users](#).

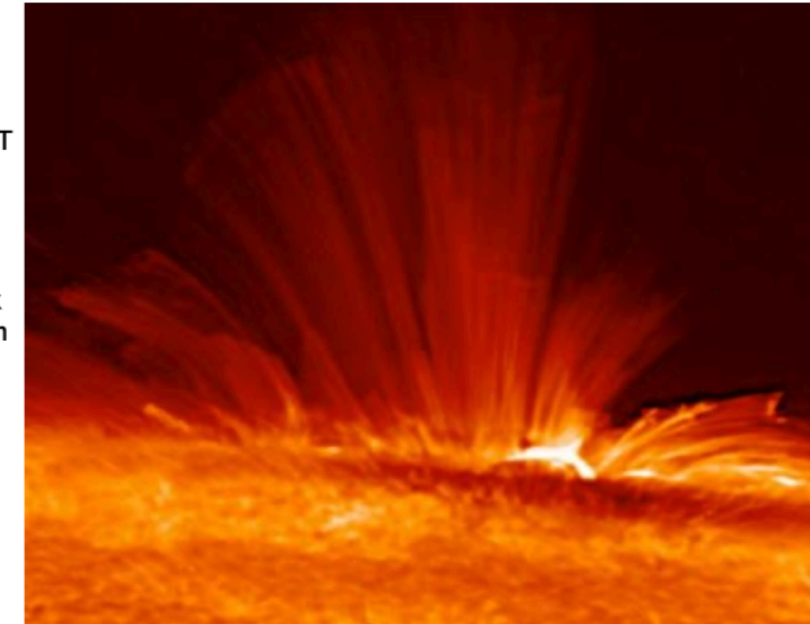


Image taken by Hinode SOT. Credit: Hinode JAXA/NASA

<http://sdc.uio.no/>

395721 groups w/19997788 matching files (54.74% of all files) – 0.36 seconds.

[Search](#) [Reset](#) [Full reset](#) [TinyURL!](#)

Instruments: IRIS/SJI IRIS/SPEC EIS XRT SOT(all) SOT/NFI(NB) SOT/BFI(WB) SOT/SP

EPOCH START :

EPOCH END :

POINT xy :

CEN RADIUS :

FOVX :

FOVY :

MAX RADIUS :

MIN RADIUS :

XCEN :

YCEN :

EXPTIME :

Add field to show (*?[] allowed)

STATUS:

Quicklook
Level 0
Level 2

Show (deselect to remove):

FILE
INSTRUME
DATE_OBS
TARGET
E_NEXP_PRP
S_WAVE

TR MODE:

FIX
MISSING
NA
TR1
TR2
TR3

- Auto-include search fields
- Show thumbnails

[SOT/SP level 1/1D options](#)

Show level 1 leads only

Continuum intensity
Long. apparent flux density
Transv. apparent flux density
Velocity (6301.50)
Stokes I [lines]/conti

Grouping: Fine

Expand result to include whole group: None

Sort order: DATE_OBS Descending

Lines/page:

EIS line fit thumbs selection

Ca XVII 192.820	...	or max:
Fe XII 195.120		
He II 256.320		
Fe XI 180.400		

Maps: Velocity

Find more search criteria: [Add new search criteria \(*?\[\] allowed\)](#)

More search criteria:

[FITS](#) [Plan](#) [Quality](#) [Misc](#) [EIS](#) [IRIS](#) [XRT](#) [SOT](#)

Save as:

[Search](#) [Reset](#) [Full reset](#) [Home](#) [User Survey](#) [Hinode Europe](#)

Quick hints

Each box like this forms a single criterion

- Blank/unfilled criteria are ignored
- There are **no mandatory criteria**
- It's **perfectly fine** to select millions of files
- Used criteria (i.e. all boxes) are combined with AND
- Instrument-specific criteria only rejects among its 'own' files
- Enable tooltips & hover over a keyword/textbox for more info
- Criterion colour coding after checking w/server:

'Orthogonal' criteria reject all files when combined with all other criteria. 'Empty' criteria reject all possible files (separately).

[Examples/recommended searches](#)

<http://sdc.uio.no/search/form>

Search statistics:

*** Ran 7 queries.
 *** 0 queries used more than 0.1 seconds.
 *** Total query time: 0.041 seconds.
 *** Total elapsed time: 0.073 seconds.

Step 1: Select simulation

The following simulations are available, please select one:

- [en024048_hion](#) 24 x 24 x 17 Mm³ with 48 km horizontal resolution and 19–100 km vertical resolution. 504x504x496 grid points. Average unsigned magnetic field strength in the photosphere is 5 mT (50 G) with two dominant opposite polarity regions 8 Mm apart – enhanced network. Non-equilibrium hydrogen ionization included.
- [ch024031_by200bz005](#) 24 x 24 x 17 Mm³ with 31 km horizontal resolution and 12–82 km vertical resolution. 768x768x768 grid points. Average unsigned magnetic field strength in the photosphere is 4 mT (40 G) with no large scale magnetic field. The average signed magnetic field strength is 5 G mimicking a coronal hole. At the bottom boundary (2.5 Mm below the surface), a horizontal field of 200 G along the y-axis is fed into the inflows such that the field-strength is slowly increasing with time and there are interactions between the existing field and the flux emergence. Hydrogen is treated in LTE.
- [en096014_gol](#) 2D run: 96 x 43 Mm with 14 km horizontal resolution 12–70 km vertical resolution 6930x1554 grid points. The mean unsigned field at the photosphere is ~19 mT (190 G) with two dominant medium size opposite polarity regions (~5–10 Mm) 40 Mm apart Hydrogen and Helium are treated in LTE. Ion neutral interaction effects are taken into account using a Generalized Ohm's Law which includes the ambipolar diffusion and Hall term. Time series.

Time step 280 includes the artificial diffusion, for easy comparison with the figures in the Science paper (Martinez-Sykora et al 2017).

Time step 308 includes synthetic intensities included for Fe IX 171, Si IV 1402, Mg II h & k and Ca II 8542.
- [en096014_nongol](#) As en096014_gol but without Ion-neutral interaction effects.
- [qs006005_dyc](#) 3D run: 6 x 6 x 10.5 Mm with 5 km horizontal resolution 4–20 km vertical resolution 1200x1200x1736 grid points. The mean unsigned r.m.s. field at the photosphere is ~5.6 mT (56 G) developed via local dynamo. Hydrogen and Helium are treated in LTE. Ion neutral interaction effects are not taken into account.



Step 2: Select variables/radiative transfer products for en024048_hion

Atmospheric variables (481MB per time step per variable)

- lgr log₁₀(mass density)
- ux bulk velocity in x
- uy bulk velocity in y
- uz bulk velocity in z
- lge log₁₀(internal energy)
- bx magnetic field strength in x
- by magnetic field strength in y
- bz magnetic field strength in z
- lgne log₁₀(electron density)
- lgp log₁₀(gas pressure)
- lgtg log₁₀(temperature)
- lgn1 log₁₀(population density in ground state of hydrogen)
- lgn2 log₁₀(population density in n=2 state of hydrogen)
- lgn3 log₁₀(population density in n=3 state of hydrogen)
- lgn4 log₁₀(population density in n=4 state of hydrogen)
- lgn5 log₁₀(population density in n=5 state of hydrogen)
- lgn6 log₁₀(population density of protons)

Radiative transfer products (550MB–650MB per time step per product)

Atomic model: Mg_II with 10 levels, Mg_III with 1 level

- intensity intensity as a function of wavelength
- zt1 height of tau=1 as a function of wavelength

Proceed to select time steps

Numerical Simulations

Simulation name	Domain (Mm)	(x,y) resolution (km)	Timespan (minutes)
en024048_hion	24 x 24 x [-2.5, 14]	48	26
en024048_hion	MgII h&k synthetic obs	48	26
en096014_gol	90 x [-2.5, 40]	14	15
ch024031_by200bz005	24 x 24 x [-2.5, 14]	31	103
qs006005_dyc	6 x 6 x [-2.5, 8]	5	5