

The
Solar Data Analysis Center
and the
Virtual Solar Observatory

Jack Ireland
SDAC/VSO Project Scientist

SDAC Goals

- To store and serve scientific data from NASA's and NASA partnerships' solar missions to the Internet consistent with NASA's Heliophysics Data Environment Policy.
- To enable discovery and access to similar data distributed around the net.
- To enable research progress by providing high quality, open-source software libraries for reading, reducing, and analyzing those data.

SDAC Functions

- Provision of scientific data services including instrument science operations
- Local archive data intake, management, and service.
- Serves archival or active mission data in scientifically usable form from SMM, Yohkoh, SOHO, TRACE, Hinode, and STEREO.
- Helps distribute data from SDO AIA and HMI via the VSO.
- Creating, maintaining, and enhancing a Virtual Solar Observatory (VSO).
- Enabling scientific research on solar physics data via free software libraries (SolarSoft, SunPy).
- Research and development in the storage and provision of solar physics data.

Responsibilities

SDAC	<p><i>SOHO/LASCO science operations</i> <i>STEREO data processing</i> <i>Data storage and provision of solar physics data from multiple operating and completed missions</i> <i>SolarSoftWare (SSW) development</i></p>
VSO	<p><i>Virtualized data access to local and remote data providers</i> <i>Data provider support</i> <i>API development</i> <i>Client development</i></p>

VSO connects

 Virtual Solar Observatory 

VSO Time / Instrument Search Form

Version 1.4

All from Provider	All from	Source	Instrument	Date Range
<input type="checkbox"/> HANET (unavailable)	<input type="checkbox"/>	BBSO 	<input type="checkbox"/> BBSO 	2000.07.05 →
	<input type="checkbox"/>	KANZ 	<input type="checkbox"/> KANZ 	2001.02.07 →
	<input type="checkbox"/>	OACT 	<input type="checkbox"/> OACT 	2002.02.26 →
	<input type="checkbox"/>	OBSPM 	<input type="checkbox"/> OBSPM 	2004.10.22 →
	<input type="checkbox"/>	YNAO 	<input type="checkbox"/> YNAO 	2000.11.27 →
<input type="checkbox"/> HAO 	<input type="checkbox"/>	MLSO 	<input type="checkbox"/> K-Cor 	2013.09.30 →
	<input type="checkbox"/>		<input type="checkbox"/> chp 	1996.04.20 – 2013.08.02
	<input type="checkbox"/>		<input type="checkbox"/> dpm 	1994.02.20 – 2010.02.23
	<input type="checkbox"/>		<input type="checkbox"/> mk4 	1998.10.01 – 2013.07.20
	<input type="checkbox"/>		<input type="checkbox"/> cp 	1980.03.02 – 1989.11.18
	<input type="checkbox"/>		<input type="checkbox"/> AIA 	2010.05.12 →
	<input type="checkbox"/>		<input type="checkbox"/> HMI 	2010.03.29 →
	<input type="checkbox"/>		<input type="checkbox"/> ChroTel 	2012.04.01 →
	<input type="checkbox"/>		<input type="checkbox"/> KHOPI 	2008.06.07 →
	<input type="checkbox"/>		<input type="checkbox"/> EVE 	2010.04.30 →
	<input type="checkbox"/>		<input type="checkbox"/> IRIS 	2013.07.16 →
	<input type="checkbox"/>		<input type="checkbox"/> TRACE 	1996.01.19 – 2010.06.22
	<input type="checkbox"/>		<input type="checkbox"/> RHESSI 	2002.02.12 →
	<input type="checkbox"/>		<input type="checkbox"/> SJ 	2019.04.11 – 2019.04.11
	<input type="checkbox"/>		<input type="checkbox"/> SP1 	2019.04.11 – 2019.04.11
	<input type="checkbox"/>		<input type="checkbox"/> SP2 	2019.04.11 – 2019.04.11
	<input type="checkbox"/>		<input type="checkbox"/> Hi-C 	2012.07.11 – 2012.07.11
	<input type="checkbox"/>		<input type="checkbox"/> Hi-C21 	2018.05.29 – 2018.05.29

Start: Aug 10 : 17 : 00

End: Aug 10 : 20 : 59

VSO @ SDAC

https://sdac.virtualsolar.org/cgi/search?time=1&instrument=1&version=current&build=1

90%

Start: 2019 Aug 10 / 17 : 00
End: 2019 Aug 10 / 20 : 59

All Month All Day

Search Clear

- SAO (1)
- SDAC (1)
- Hinode (1)
 - XRT (1) 2006.10.23 →
 - LONGWAVE-LOBE-06 (1) 2006.04.12 – 2006.04.12
 - LONGWAVE-LOBE-07 (1) 2007.11.06 – 2007.11.06
 - LONGWAVE-SLIT-06 (1) 2006.04.12 – 2006.04.12
 - LONGWAVE-SLIT-07 (1) 2007.11.06 – 2007.11.06
 - SHORTWAVE-LOBE-06 (1) 2006.04.12 – 2006.04.12
 - SHORTWAVE-LOBE-07 (1) 2007.11.06 – 2007.11.06
 - SHORTWAVE-SLIT-06 (1) 2006.04.12 – 2006.04.12
 - SHORTWAVE-SLIT-07 (1) 2007.11.06 – 2007.11.06
- Hinode (1)
- SDO (1)
- SOHO [Finalized Data Bundles] (1)
 - CDS (1) 1996.01.19 →
 - CELIAS (1) 1995.12.02 →
 - COSTEP (1) 1995.12.07 →
 - EIT (1) 1996.01.01 →
 - ERNE (1) 1996.05.08 →
 - GOLF (1) 1996.01.01 →
 - LASCO (1) 1995.12.08 →
 - MDI (1) 1996.05.01 – 2011.04.12
 - SUMER (1) 1996.01.22 – 2017.04.04
 - SWAN (1) 1996.01.12 →
 - UVCS (1) 1996.01.20 →
 - VIRGO (1) 1995.12.06 →
- VAULT (1)
 - VAULT-1999 (1) 1999.05.07 – 1999.05.07
 - VAULT-2002 (1) 2002.06.14 – 2002.06.14
 - VAULT-2014 (1) 2014.09.30 – 2014.09.30
 - CFDT1 (1) 1986.05.26 →
 - CFDT2 (1) 1992.01.11 →
- SFO (1)
(unavailable)

Next...

- SDO data archive
 - ~16PB and growing at about ~2PB/year
 - *how best to store this much data and give everyone useful access to it?*
 - At the SDO Joint Science Operations Center (JSOC) in Stanford, CA
 - *how to move the data to the SDAC?*
 - Complex software required to run the archive in its current form
 - *Data products and archive needs to be defined to enable manageable longer term storage*

Next...

- Other mission data
 - *Parker Solar Probe WISPR data*
 - *RHESSI final data products*
 - *More Hinode Solar Optical Telescope data products*
 - *FOXSI sounding rocket data*
- New missions
 - *PUNCH data storage/provision*
 - *CODEX instrument operations and data storage/provision*

End