



**First HELAS Local Helioseismology Workshop
Nice, 25-27 Sep 2006**



Local Helioseismology in the SDO HMI/AIA Data Analysis Pipeline

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Coming soon! *Documentation on how to create and implement
pipeline modules on <http://jsoc.stanford.edu>*

JSOC Pipeline Development Status

Data Record Management System (DRMS)

Implemented at Stanford, with multiple instances to exercise distributed features; being populated with test and archival data

Storage Unit Management System (SUMS)

One instance implemented at Stanford, being populated with test and archival data, especially from HMI ground tests and selected MDI data sets

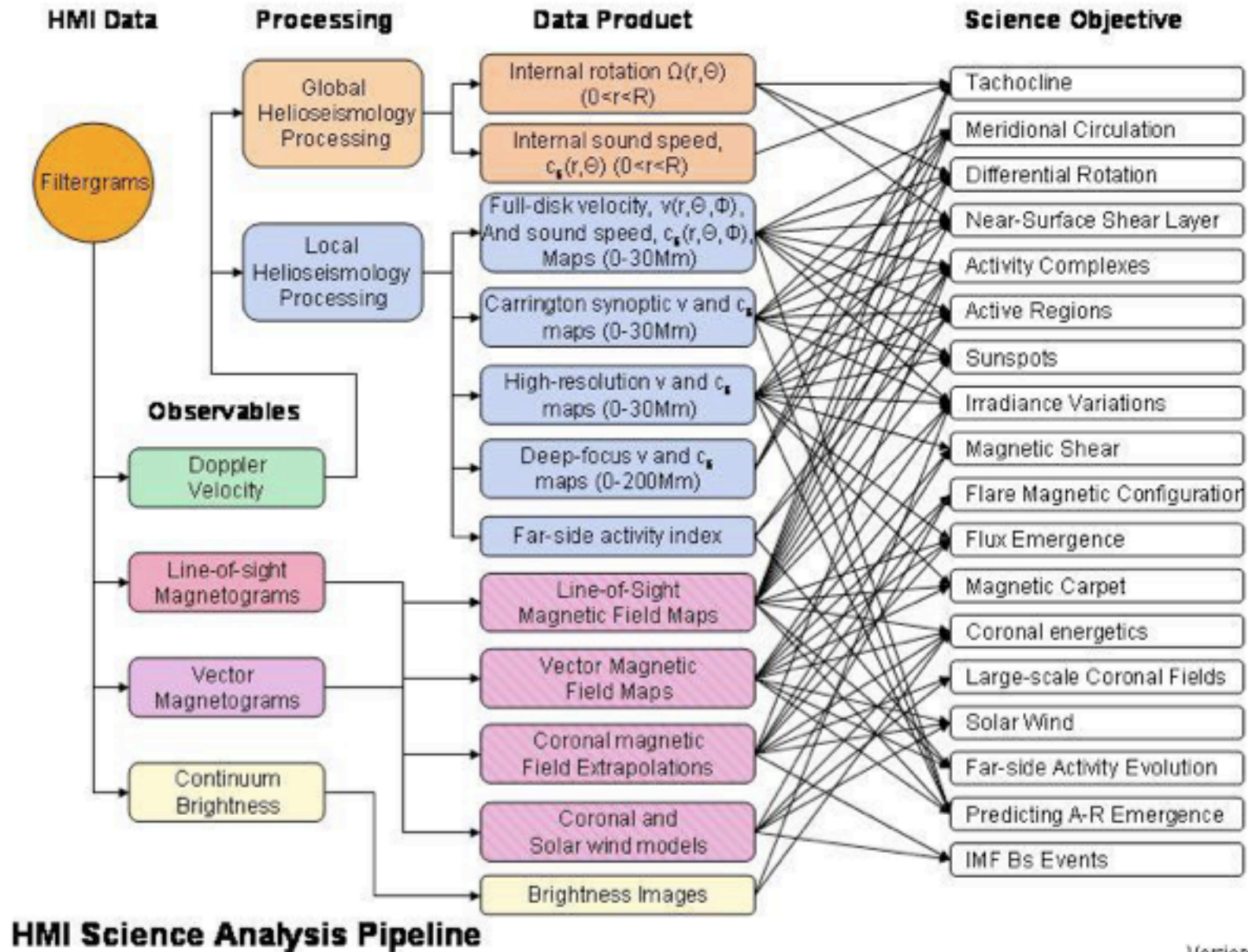
Pipeline Module DRMS API

Published internally, ready for publication; being exercised in various test modules

Pipeline Modules

Test modules being written to exercise API and DRMS/SUMS; some SOI/MDI modules ready for porting



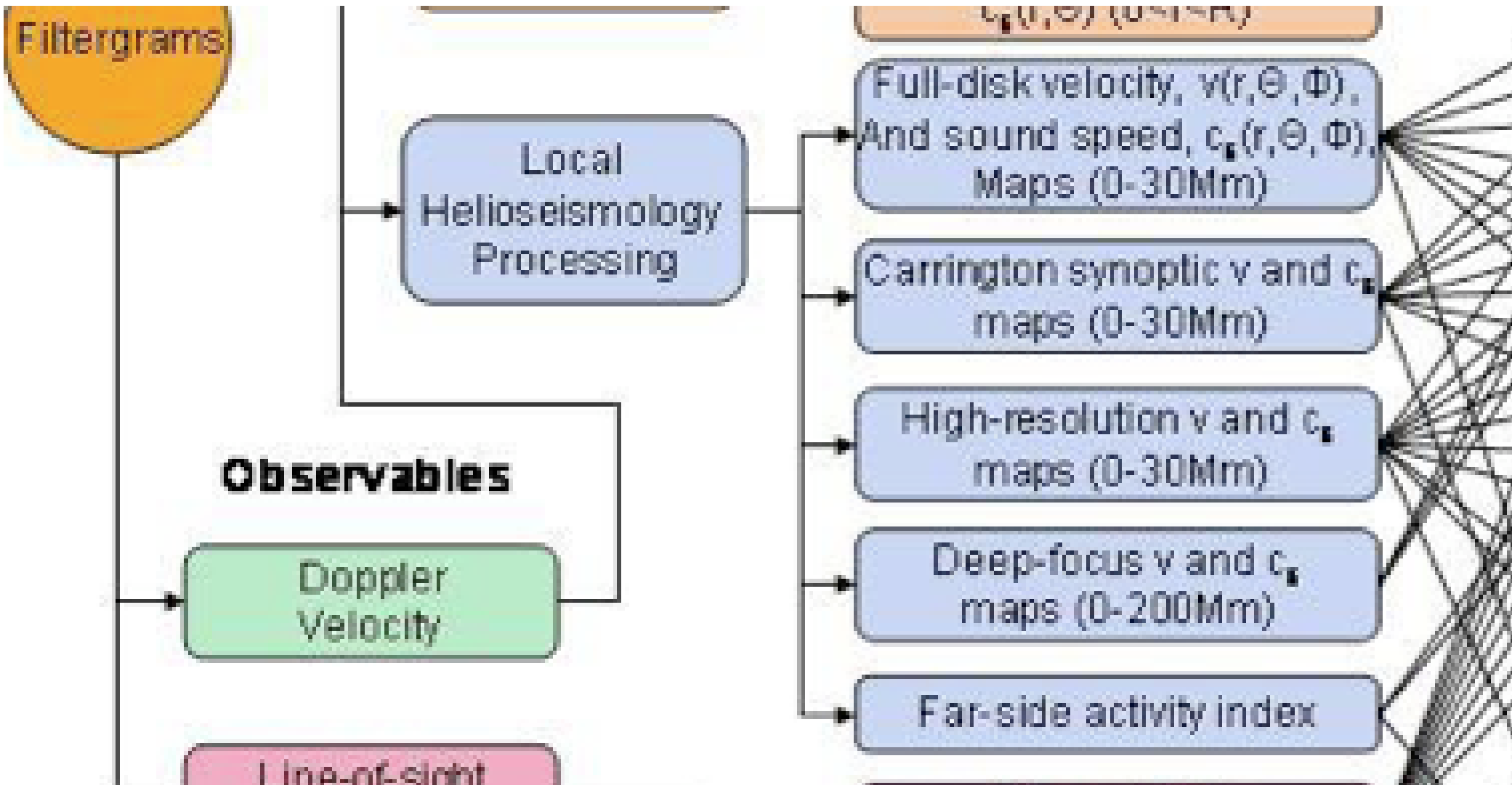


Version 1.0



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Local Helioseismology Data Products

Full-disc velocity, sound-speed maps, 0-30 Mm	Ring Diagrams	(✓)
	Time-Distance	(✓)
	Holography	?
Synoptic velocity, sound-speed maps, 0-30 Mm	Ring Diagrams	(✓)
	Time-Distance	(✓)
	Holography	?
High-resolution velocity, c maps, 0-30 Mm	Ring Diagrams	?
	Time-Distance	(✓)
	Holography	?
Deep-focus velocity, c maps, 0-200 Mm	Ring Diagrams	?
	Time-Distance	?
	Holography	?
Farside activity index	Ring Diagrams	??
	Time-Distance	??
	Holography	✓



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JSOC Data Archive Plan

	<i>Production Rate (GB/d)</i>	<i>Cached on Disk</i>	<i>Permanent Disk</i>	<i>Tape</i>
HMI Raw data	550	16 TB (30 d)	—	(2 *) 200 TB/yr
AIA Raw data	675	20 TB (30d)	—	(2 *) 240 TB/yr
HMI Lev 0 data (filtergrams)	530	52 TB (100 d)	—	190 TB/yr
AIA Lev 0 data	1080	32 TB (30d)	—	395 TB/yr
HMI Lev 1 data (Dopplergrams etc.)	130	—	46 TB/yr	—
AIA Lev 1 data	1080	95 TB (90d)	—	40 TB/yr
HMI Lev 2+ data	70	—	25 TB/yr	—
AIA Lev 2+ data	215	—	75 TB/yr	75 TB/yr



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HMI Local Helioseismology Teams

- Ring Diagrams
- Time-Distance
- Acoustic Holography/
Farside Imaging

Team tasks

Specify required/desired pipeline input and intermediate data products, including ancillary data products (e.g. inversion kernels)

Specify algorithms (including alternative approaches), parameters and metadata as appropriate for pipeline analysis

Specify testing/validation procedures

Provide implementation schedule

Team organization

Each team should designate a person or persons responsible for individual pipeline element implementation and data production

Include both algorithm experts and persons familiar with the pipeline system



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*“Ask not what SDO can do for you;
ask rather what you can do for SDO”*



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