

Table showing relationship between HMI science objectives (Proposal section C1) and data products (Proposal Foldout.1 Section L)		Internal rotation $\Omega(r,\Theta)$ ($0<r<R$)	Internal sound speed, $cs(r,\Theta)$ ($0<r<R$)	Full-disk velocity, $v(r,\Theta,\Phi)$, And sound speed, $cs(r,\Theta,\Phi)$, Maps (0-30Mm)	Carrington synoptic v and cs maps (0-30Mm)	High-resolution v and cs maps (0-30Mm)	Deep-focus v and cs maps (0-200Mm)	Far-side activity index	Line-of-Sight Magnetic field maps	Vector Magnetic Field maps	Coronal magnetic Field extrapolations	Coronal and Solar wind models	Brightness Images	Context Magnetograms	EUV Images, i.e. AIA	Coronagraph Images	EUV Spectral Irradiance
Convection zone dynamics and solar dynamo	Structure and dynamics of the tachocline	HS-1	HS-1				HS-2		MAG-1								
	Variations in differential rotation	HS-1		HS-3	HS-3		HS-2		MAG-1								
	Evolution of meridional circulation			HS-3	HS-3	HS-3	HS-2		MAG-1								
	Dynamics in the near surface shear layer	HS-3		HS-3	HS-3	HS-3			MAG-1								
Origin and evolution of sunspots, active regions and complexes of activity	Formation and deep structure of magnetic complexes of activity				HS-4	HS-4		HS-2	MAG-1		MAG-2						
	Active region source and evolution			HS-5	HS-5	HS-5		HS-2	MAG-3								
	Magnetic flux concentration in sunspots			HS-5	HS-5	HS-5			MAG-3								
	Sources and mechanisms of solar irradiance variations			HS-6	HS-6		HS-6		MAG-1	MAG-1					IC-1	X	X
Sources and drivers of solar activity and disturbances	Origin and dynamics of magnetic sheared structures and δ -type sunspots					HS-8				MAG-4	MAG-4				IC-2		
	Magnetic configuration and mechanisms of solar flares									MAG-5	MAG-4	MAG-2				X	X
	Emergence of magnetic flux and solar transient events.					HS-5			MAG-3	MAG-3	MAG-3					X	
	Evolution of small-scale structures and magnetic carpet					MAG-6			MAG-1	MAG-6						X	

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Links between the internal processes and dynamics of the corona and heliosphere	Complexity and energetics of the solar corona								MAG-7	HS-3	MAG-7	MAG-7	MAG-7		X	X	
	Large-scale coronal field estimates										MAG-8	MAG-8			X	X	
	Coronal magnetic structure and solar wind									MAG-8	MAG-8	MAG-8			X	X	
Precursors of solar disturbances for space-weather forecasts	Far-side imaging and activity index							X	X	X						X	
	Predicting emergence of active regions by helioseismic imaging			X	X	X			X	X					X		
	Determination of magnetic cloud Bs events										X	X				X	

A new description of the Observation Types (e.g. HS-1) is being developed and is in this directory as [Observation_types.doc](#) and [Observation_types.html](#).

Observation	Observable, object	Instances or % of intervals	Observing interval	Completeness in interval	Span of observations	Res	Notes
HS-1	V, fd	12	72-day	95%	3-years	2''	
HS-2	V, fd	80%	24-hour	85%	3-years	2''	
HS-3	V, fd	2	90-day	95%	Min-max		2 per year
HS-4	V, ARs	5	120-day	95%	Active Sun		
HS-5	V, ARs	100	12-day	95%	Any	1''	>10 "large"
HS-6	V, fd	60%	24-hour	95%	Min-max	2''	Max gap 30h
HS-7	V, fd	80%	10-hour	95%	Min-max	1''	Max gap 30h
HS-8	V, ARs	>5 delta-spots	10-day	95%	Any		Need to sample several at all phases of life
MAG-1	B-5m, fd	80%	5-min/hour	80%	3-years	2''	Max gap 10h
MAG-2	B-5m, fd	10%	5-min/hour	80%	3-years	2''	Min 2/day
MAG-3	B, ARs	100	12-day	95%	Any	1''	>10 "large"
MAG-4	B, ARs	>5 delta-spots	10-day	95%	Any		
MAG-5	B, ARs	50 ARs with flares	2-day	95%	Any		>2 X-class
MAG-6	B, fd	Monthly	3-day		Min-max		
MAG-7	B,fd	50%	60-day	85% for HS	Min-max		
MAG-8	B or Bvec	3 per day 80% of time	20-min		Min-max		
IC-1	Ic,fd	80%	5-min/hour	80%	3-years	2''	Max gap 10h
IC-2		>5 delta spots	10-day	95%	Min-max		