

# ISIM Fast Facts

Key Instrument Characteristics (as of Mar 06)										
Instrument	Channel/Mode	Wavelength (microns)	Typical Spectral Resolution ( $\lambda/\Delta\lambda$ )	FOV	Angular Resolution (arc sec)	Number of Sensor Chip Arrays	Mega Pixels	Detector Type / Format NIR=18 um pixels MIR=25 um pixels	Detector Temp (K)	
NIRCam	Shortwave	0.6 - 2.3	4,10,100	2.2' x 2.2' each of 2 modules	0.032 / pixel	8	34	HgCdTe / 2048 x 2048	40	
	Longwave	2.4 - 5.0	4,10,100	2.2' x 2.2' each of 2 modules	0.065 / pixel	2	8	HgCdTe / 2048 x 2048	40	
NIRSpec	Multi-Object Spec	1.0 - 5.0	1000	203 x 463 mas clear shutter aperture, 267 x 528 mas pitch, 4 x 171 x 365 shutter array format, 9.7 sq arcmin multi-object targetable solid angle	see FOV	2	8	HgCdTe / 2048 x 2048	37	
		0.6 - 5.0	100	200 x 3500 mas x 3, 400 x 4000 mas, 100 x 2000 mas						
	Long Slits (5)	1.0 - 5.0	100, 1000, 2700	200 x 3500 mas x 3, 400 x 4000 mas, 100 x 2000 mas						
	IFU	0.7 - 5.0	2700	3 x 3 arc-sec	0.10 slice width					
MIRI	Imager	5 - 27	4-6	1.9' x 1.4'	0.11 / pixel	1	1	Si:As / 1024 x 1024	7	
	Low Res Slit	5 - 11	100	5" x 0.6"	see FOV	1	1	Si:As / 1024 x 1024	7	
	Med Res IFU	4.87 - 7.76	3000	3.7" x 3.7"	0.18 slice width	1	1	Si:As / 1024 x 1024	7	
		7.45 - 11.87	3000	4.7" x 4.5"	0.28 slice width					
		11.47 - 18.24	3000	6.2" x 6.1"	0.39 slice width					
		17.54 - 28.82	2250	7.1" x 7.7"	0.65 slice width					
FGS-TF		1.6 - 2.5, 3.2 - 4.9	100	2.2' x 2.2'	0.065 / pixel	1	4	HgCdTe / 2048 x 2048	40	
FGS-Guider		0.8 - 5.0	0.7	2.3' x 2.3' each of 2 modules	0.068 / pixel	2	8	HgCdTe / 2048 x 2048	40	
Total ISIM							66			

JWST Sensitivity (JWST-RQMT-000634 Rev-M Baseline)							
Wavelength (microns)	Instrument/Mode	Bandwidth ( $\lambda/\Delta\lambda$ )	SNR	Maximum Wall Clock Time (s)	Continuum Flux Density (nJy)	Continuum Flux Density ( $10^{-33} \text{ W m}^{-2} \text{ Hz}^{-1}$ )	Unresolved Line Flux ( $10^{-21} \text{ W m}^{-2}$ )
2	NIRCam	4	10	10,000	11.40	0.11	NA
3.5	FGS-TF	100	10	10,000	126.00	1.26	NA
3	NIRSpec/Low Res	100	10	10,000	132.00	1.32	NA
2	NIRSpec/ Med Res	NA	10	100,000	NA	NA	0.57
10	MIRI/Broadband	5	10	10,000	700.00	7.00	NA
21	MIRI/Broadband	4.2	10	10,000	8700.00	87.00	NA
9.2	MIRI/Spectrometer	2400	10	10,000	NA	NA	10
22.5	MIRI/Spectrometer	1200	10	10,000	NA	NA	56.00

Resource Allocations (as of May 07)				
Instrument	Mass: Region 1/2	Volume R1 (m <sup>3</sup> )	Observation Power	Uncompressed Data Volume
	(kg)		Region 2 (W)	
NIRCam	161 / 46	-0.3	52	334
NIRSpec	220 / 44	-3.5	40	232
MIRI	102 / 33	-2.5	37	96
FGS	92 / 21	-0.6	51	68
Total SI	575 / 144		180	max ISIM = 458 (NIRCam prime, NIRSpec parallel cal 24% utilization)
Total ISIM	1065 / 340		200	
SI/ISIM	0.54 / 0.42		0.90	NA

Schedule: Flight Delivery (ISIM Rev-H Draft)			
Flight Item	Prior Rev	Delta (months)	Flt Delivery
NIRCam	Sep-10	2	Nov 2010 TBR
NIRSpec	Jul-10	4	Nov-10
MIRI OBA	Jun-10	4	Oct-10
FGS	Jun-10	5	Nov-10
OSIM	May-10	4	Sep-10
ICDH	Sep-10	4	Jan-11
ISIM	Oct-11	7	May-12

Greenhouse: Update: July 09