

Sensor	LifETIME	Wave-length/ Frequency	Polarization	Resolution	Frame Size	Repeat Cycle	Access
Seasat	1978	L-band $\lambda = 24.6\text{cm}$	HH	Az: 25m Rg: 25m	100km	-	Free & open
ERS-1	1991-2001	C-band $\lambda = 05.6\text{cm}$	VV	Az: 6-30m Rg: 26m	100km	35 days	Restrained
JERS-1	1995-1998	L-band $\lambda = 24.6\text{cm}$	HH	Az: 18m Rg: 18m	75km	44 days	Restrained
ERS-2	1995-2011	C-band $\lambda = 05.6\text{cm}$	VV	Az: 6-30m Rg: 26m	100km	35 days	Restrained
ENVISAT	2002-2012	C-band $\lambda = 05.6\text{cm}$	HH, VV, W/HH, HH/HV, W/VH	Az: 28m Rg: 28m	100km	35 days	Restrained
ALOS-1	2006-2011	L-band $\lambda = 24.6\text{cm}$	FBS: HH, VV FBD: HH/HV, HH/VH PLR: HH/HV /VH /VV ScanSAR: HH, VV	FBS: 10x10m FBD: 20x10m PLR: 30x10m ScanSAR: 100m	FBS: 70km FBD: 70km PLR: 30km ScanSAR: 250-350km	46 days	Free & open
Radarsat-1	1995-2013	C-band $\lambda = 05.6\text{cm}$	HH	Standard: 25x28m Fine: 9x9m Wide1: 35x28m Wide2: 35x28m ScanSAR: 50x50-100x100m	Standard: 100km Fine: 45km Wide1: 165km Wide2:150km ScarSAR: 305-510km	24 days	1995-2008: Restrained 2008-2013: Commercial
TerraSAR-X TanDEM-X	2007-2010-	X-band $\lambda = 03.5\text{cm}$	Single: HH, VV Dual: HH/VV, HH/HV, VV/VH Twin: HH/WV, HH/VH, VV/VH	Spotlight: 0.2x1.0-1.7x3.5m Stripmap: 3x3m ScanSAR: 18-40m	Spotlight: 3-10km Stripmap: 50x30km ScanSAR: 150x100- 200x200km	11 days	Application-dependent; restrained scientific, commercial
Radarsat-2	2007-	C-band $\lambda = 05.6\text{cm}$	Single: HH, VV, HV, VH Dual: HH/HV, VV/VH Quad: HH/HV/VH/VV	Spotlight: ~1.5m Stripmap: ~3x3-25x25m ScanSAR: 35x35-100x100m	Spotlight: 18x8km Stripmap: 20-170m ScanSAR: 300x300- 500x500km	24 days	Commercial
COSMO -SkyMed	2007-	X-band $\lambda = 03.5\text{cm}$	Single: HH, VV, HV, VH Dual: HH/HV, HH/VV, VV/VH	Spotlight: $\leq 1\text{m}$ Stripmap: 3-15m ScanSAR: 30-100m	Spotlight: 10x10km Stripmap: 40x40km ScanSAR: 100x100 - 200x200km	Satellite: 16 days Constellation: ~hrs	Commercial; limited proposal-based scientific
ALOS-2 PALSAR-2	2014-	L-band $\lambda = 24.6\text{cm}$	Single: HH, VV, HV, VH Dual: HH/HV, VV/VH Quad: HH/HV/VH/VV	Spotlight: 1x3m Stripmap: 3-10m ScanSAR: 25-100m	Spotlight: 25x25km Stripmap: 55x70- 70x70km ScanSAR: 355x355km	14 days	Commercial; limited proposal-based scientific
Sentinel-1	2014-	C-band $\lambda = 05.6\text{cm}$	Single: HH, VV Dual: HH/HV, VV/VH	Stripmap: 5x5m Interferometric Wide Swath (IW): 5x20m Extra Wide Swath (EW): 20-40m	Stripmap: 375km IW: 250km EW: 400km	Satellite: 12 days Constellation: 6 days	Free & open
SAOCOM	2018-	L-band $\lambda = 24.6\text{cm}$	Single: HH, VV Dual: HH/HV, VV/VH Quad: HH/HV/VH/VV	Stripmap: 10x10m TopSAR: 100x100m	Stripmap: >65km TopSAR: 320km	Satellite: 16 days Constellation: 8 days	TBD
PAZ SAR	2018-	X-band $\lambda = 03.5\text{cm}$	*See TerraSAR/Tan- DEM-x	*See TerraSAR/TanDEM-x	*See TerraSAR/TanDEM-x	11 days	Commercial
RCM	2019	C-band $\lambda = 05.6\text{cm}$	Single: HH, VV, VH, HV Dual: HH/HV, VV/VH, HH/VV Compact Quad	Very high, high, medium, and low-res modes (3-100m)	20x20-500x500km	Satellite: 12 days Constellation: ~hrs	TBD
NISAR	2021	L-band $\lambda = 24.6\text{cm}$	Single: HH, VV, VH, HV Dual: HH/HV, VV/VH, HH/VV Quad	3-20m (mode dependent)	250km	12 days	Free & open
BIOMASS	2021	P-band $\lambda = 70.0\text{cm}$	Quad	$\leq 60\text{x}50\text{m}$	160km	17 days	Free & open
TanDEM-L	2023	L-band $\lambda = 24.6\text{cm}$	Single, dual, quad modes	12x12m	350km	Satellite: 16 days Constellation: 8 days	Free & open

Sensor	Format	Product Name	Product Files	Processing Level	Open Source Tools	Applications
Current Spaceborne Sensors						
Seasat	HDF5	L1 HDF5 Image	h5, xml, kml, jpg, qc_report	Amplitude	ASF MapReady, QGIS	Visualization; GIS-compatible
	GeoTIFF	L1 GeoTIFF	tif, xml, kml, jpg, qc_report	Geocoded amplitude	QGIS; graphics software	Visualization; GIS-compatible
ERS-1&2 Envisat Radarsat-1 JERS-1	EOS	L0	D,L,P, kml, jpg	Raw	N/A	Production of higher-level products
		L1 Image		Amplitude	ASF MapReady; S1TBX	Visualization, mapping, change detection
ALOS-1	CEOS	L1.0	LED, IMG, VOL, TRL	Raw	N/A	Production of higher-level products
		L1.1 Complex		SLC	SNAP; ROI_PAC; DORIS; PolSARpro; GMTSAR	Interferometry
		L1.5		Amplitude	ASF MapReady; S1TBX; PolSARpro	Visualization, mapping, change detection
TerraSAR-X TanDEM-X	COSAR fomat	L1 SSC (Single Look Slant Range Complex)		SLC	SNAP; ROI_PAC; DORIS; PolSARpro; GMTSAR	Interferometry
	GeoTIFF	L1 MGD (Multi Look Ground Range Detected)		Amplitude	ASF MapReady; SNAP; PolSARpro	Visualization, mapping, change detection
	GeoTIFF	L1 GEC (Geocoded Ellipsoid Cor-rected)		Amplitude	ASF MapReady; SNAP; PolSARpro	Visualization, mapping, change detection
	GeoTIFF	L1 EEC (Enhanced ellipsoid corrected)		Amplitude	ASF MapReady; SNAP; PolSARpro	Visualization, mapping, change detection
Radarsat-2	GeoTIFF or NITF 2.1 with XML	L1 SLC		SLC	SNAP; ROI_PAC; DORIS; PolSARpro; GMTSAR	Interferometry
		L1 Ground Range (SGX; SGF; SCN; SCW; SCF; SCS)		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		L1 Geocorrected (SSG; SPG)		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
COSMO-SkyMed	HDF5	L0 RAW		Raw		Production of higher-level products
		L1A		SLC	SNAP; ROI_PAC; DORIS; PolSARpro; GMTSAR	Interferometry
		L1B MDG (Multi-look Detected Ground Range)		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		L1C GEC		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		L1D GTC (Geocoded Terrain Corrected)		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		Various higher-level products				

Sensor	Format	Product Name	Product Files	Processing Level	Open Source Tools	Applications
ALOS-2 PALSAR-2		L1.1 SLC		SLC	SNAP; ROI_PAC; DORIS; Pol-SARpro; GMTSAR	Interferometry
		L1.5 (slant-range detected)		Amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		L2.1 GTC		Geocoded amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
		L3.1 (Quality corrected L1.5)		Enhanced amplitude	SNAP; PolSARpro	Visualization, mapping, change detection
Sentinel-1	SAFE	L0 raw data	tiff, xml, xsd, kml, html, png, pdf, safe	Raw	N/A	Production of higher-level products
	GeoTIFF	L1 SLC		SLC	S1TBX; ROI_PAC; DORIS; PolSARpro	Interferometry
	GeoTIFF	L1 Detected High-Res Single- & Dual-Pol		Georeferenced Amplitude	ASF MapReady; Google Earth Engine; S1TBX; PolSARpro	Visualization, mapping, change detection
	GeoTIFF	L1 Detected Single- & Dual-Pol		Georeferenced Amplitude	ASF MapReady; Google Earth Engine; S1TBX; PolSARpro	Visualization, mapping, change detection
Recent and Future Spaceborne Sensors						
SAOCOM PAZ SAR RCM NISAR BIOMASS TanDEM-L	Formats and data types yet to be determined					
Airborne Sensors						
UAVSAR PolSAR	UAVSAR	Ground Projected Complex [full-res; 3x3; 5x5]	grd, ann	Georeferenced Amplitude	ASF MapReady; PolSARpro	Visualization
		Multi-Look Complex	mic, ann	MLC	ASF MapReady; PolSARpro	Polarimetry
		Compressed Stokes Matrix	dat, ann	AIRSAR compressed stokes matrix	ASF MapReady; PolSARpro	Polarimetry
	GeoTIFF	Pauli Decomposition	tif	MLC pol. decomposition	QGIS; graphics software	Visualization, GIS compatible
	KMZ	Google Earth KMZ	kmz	KML compressed	Google Earth	Visualization
UAVSAR InSAR	UAVSAR	Amplitude	amp1, amp2, ann	Amplitude	ASF MapReady; PolSARpro	Visualization
		Ground Projected Amplitude	amp1.grd, amp2.grd, hgt.grd, ann	Georeferenced Amplitude	ASF MapReady; PolSARpro	Visualization
		Interferogram	int, unw, cor, ann	Interferogram	ASF MapReady; PolSARpro	
		Ground Projected Interferogram	cor.grd, hgt.grd, int.grd, unw.grd, ann	Interferogram	ASF MapReady; PolSARpro	
	KMZ	Google Earth KMZ	amp.kmz, cor.kmz, hgt.kmz, int.kmz, osr.kmz, unw.kmz		Google Earth	Visualization