MULTI SATELLITE SPECTRAL BANDS CONVERSION TABLE - Follow Wave-Lenghts

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This whole table is under tests / verification

SATELLITES >	SENTINEL-2-MSI Swath:100km; Revisit:5d				LANDSAT-8-OLI Swath:185km;Revisit:16d. Res:15-60m (2013-05-30+)				SIMPLE RGBN SATELLITES							CBERS - INPE Orbit H: 628,6 km				SKYMAP50-SV1 Swath:12km; Revisit:2d. Resolution: 0.5m / 2m (2013-05-30+)				OTHER MULTISPECTRAL SATELLITES					Sentinel-3-OLCI Swath:1270km;Revisit:4d Resolution:300m (2016-01-16+)			Sentinel-3-SLSTR Swath:1400km;Revisit:2d Resolution:500/1000m			PURPOSES - PROPERTIES (According to S2/L8/S3):
WaveLenght Aproximate		#order	Sentinel-2A (~2B) (2015-06-23+)						4A (2019-12-20+)			Wave Lenght		3 e 4 (2014+)								Jilin JL1GP - 01 & 02 CGSat HyperScan sensor												
(nm)	TYPE	BAND #order:	Wave-L. (nm) Min.	Max.	RES: m	BAND #order:	Min.	Max.	RES: m	WPM 2 - 8m	MUX 17m	WFI 55m	Min.	Max.	IDEM 5-80m	BAND	Min	Max	RES: m	BAND	Min	Max	RES: m	BAND	Wave L. nm		RES: m	BAND	Min.	Max.	BAND	Central W.L.	MULTIPLIER	
400	Violet									31d	31d	5d			26-5d									B0-Pan	450-800		5	B01	392,5	407,5				//Coastal aerosol, correction
420	Violet									92Km	95Km	684K			60-866km			=CBERS						B1	403-423		5	B02	407,5	417,5				//YELLOW subs.,detrital pig. (TURBIDITY)
440	Violet	#12-B01	432,2	453,2	60	#3-B01	433	453	30	B0-PAN			450	900		B0-PAN	450	890	0,5					B2	433-453		5	B03	437,5	447,5				Aerosol//Chlorophyll abs., vegetation
460	*BLUE*	#1-B02	459,4	525,4	10	#2-B02	450	515	30	B1-B	B05	B13	450	520		B1	450	520	2					B3	450-515		5	B04	485	495	reflect			SoilxVeg.,water/Bathym./Chlorophyll MAX.
530						#1-B08-PAN	500	680	15															B7	485-495		10	B05	505	515	500m			//Chlorophyll, sedim., turbid., red tide
560	*GREEN*	#3-B03	541,8	577,8	10	#6-B03	525	600	30	B2-G	B06	B14	520	590		B2	520	590	2					B4	525-600		5	B06	555	565	S1	554,27	1	Turbidity,oil//Chlorophyll MIN.
590																								B8	615-625		10							L-8 Panchromatic //
600																								B5	630-680		5	B07	615	625				//Sediment loading
630	*RED*	#5-B04	649,1	680,1	10	#5-B04	630	680	30	B3-G	B07	B15	630	690		B3	630	690	2					B9	650-680		10	B08	660	670	S2	659,47	1	Soil,veg//2nd Chl.MAX,sedim.,yellow subs.
670																								B14	660-670		20	B09	670	677,5				//Improved fluorescence,Surface Mix.Layer
690																								B15	678-685		20	B10	677,5	685				//Chlorophyll fluorescence peak
700	RedEdge	#6-B05	696,6	711,6	20																			B10	699-719		10	B11	703,75	713,75				Vegetation//Chl.fl.basel.
740	RedEdge	#8-B06	733	748	20																			B11	733-748		10	B12	750	757,5				Vegetation//O2 abs.,clouds,veg.
760	RedEdge																							B16	750-758		20	B13	760	762,5				//O2 abs.,clouds,veg.;aerosol corr.
765	RedEdge																							B17	759-763		20	B14	762,5	766,25				//Atmospheric correction
767	RedEdge																							B12	773-793		10	B15	766,25	768,75				//Cloud top press.,fluore.over land
780	NIR	#9-B07	772,8	792,8	20					B4-N	B08	B16	770	890		B4-NIR	770	890	2					B6-NIR	785-900		5	B16	771,25	786,25				Vegetation//Atmos.corr.
830	NIR	#2-B08	779,8	885,8	10																													Vegetation
860	NarrNIR	#10-B8A	854,2	875,2	20	#4-B05	845	885	30															B13	855-875		20	B17	855	875	S3	868	1	Vegetation//Atmos.aeros.corr.,clouds
880	NIR																							B18	935-955		20	B18	880	890				Vegetation//Water vapour reference; SLSTR
900	SWIR																							B19	1000-1040		20	B19	895	905				//Water vapour abs.,Veg.(max.reflect.)
940	SWIR	#13-B09	935,1	955,1	60																			SW1	1195-1225		100	B20	930	950				//Water vapour abs.,Atmos.aeros.corr.
1300	SWIR	#4-B10	1358	1389	60	#9-B09	1360	1390	30															SW2	1360-1390		100	B21	1000	1040	S4	1374,8	3	Cirrus cloud detection//Atmos.aeros.corr.
1600	SWIR	#7-B11	1568,2	1659,2	20	#8-B06	1560	1660	30				1550	1750	SWIR1									SW3	1550-1590		100				S5	1613,4	3	Snow/ice/cloud disc>0.025;moist.soil-veg.//
2200	SWIR	#11-B12	2114,9	2289,9	20	#7-B07	2100	2300	60				2080	2350	SWIR2									SW4	1610-1690		100				S6	2250,7	3	Fire/Ground/Snow/cloud>0.015;soil-veg.
+	IR																														S7/F1	3742	.001	THERMAL INFRA-RED
+	THERMAL					#10-B10	TIRS1		100				10400	12500	Thermal									MW	3700-4950		100				S8/F2	10850	.001	/Thermal map, soil moist/
+	THERMAL					B11	TIRS2		100															LW	7500-13500		150				S9	12020,5	.001	/Improved thermal map/
BAND OFFSET TIME:			B02-B12: 2.09s 12 tracks			0.96s / 14 tracks (FPM)																												

INDICES FORMULAS - CONVERSION:

	SENTINEL-2-MSI	LANDSAT-8-OLI	BASIC R , G , B , NIR SATELLITES:	OTHER MULTISPECTRAL SATELLITES	NOTES - Purposes:
NDVI (NDNR)	(B08-B04)/(B08+B04)	(B05-B04)/(B05+B04)	NDVI = (N-R)/(N+R) ; DVI = N/R	(B17-B08)/(B17+B08)	Normalized Difference Vegetation Index
Burn Ratio	(B08-B12)/(B08+B12)	(B05-B07)/(B05+B07)		(B08-S6)/(B8+S6)	Vegetation
NDMI	(B08-B11)/(B08+B11)	(B03-B05)/(B03+B05)		(B06-B17)/(B06+B17)	Water on Leaves
NDWI (NDGN)	(B03-B08)/(B03+B08)	(B03-B05)/(B03+B05)	NDWI = (G-N)/(G+N) ; Simple = G/N	(B06-B17)/(B06+B17)	Water Bodies: Normalized Difference Water Index
NDSI	(B03-B11)/(B03+B11)	(B03-B06)/(B03+B06)			Cut mask near (S2NDSI>0.2 & B03>0.15)
GEOAlteration	B11/B12	B06/B07		B20/B21	Geology
FeOx	B11/B08	B06/B05		B20/B17	Geology
IOx (R/B)	B04/B02 - Alternative: B05/B01	B04/B02	IOx = R/B	B08/B04	Geology: Iron Oxide Index R/B
Clouds	~ B01>0.3 || B09>0.1 || B10>0.01		G > .3 (? - test)		Clouds(any)
Brovey(Sharp)			Brovey Pansharpening = (< R ; G ; B ; N > / (R +G + B + N)) * PAN		Simple Color Sharpening or Pan-Sharpening

BAND COMPOSITIONS: SENTINEL & OTHERS

	SENTINEL-2-MSI	LANDSAT-8-OLI	CBERS-INPE: 3 / 4 / 4A	SKYMAP50-SV1	JL1GP - CGSat	Sentinel-3-OLCI	Sources
NATURAL	B04*3, B03*3, B02*3	B04*3, B03*3, B02*3	R, G, B			(B08+B09+B10)*1, B06*3, (B04+B05)*1.5	https://www.usgs.gov/faqs/what-are-best-landsat-sp
FALSE NIR (RED VEG)	B08*2,B04*3,B03*3	B05*2,B04*3,B03*3	N, R, G (~R, N, G)			B17*2, (B08+B09+B10)*1, (B04+B05)*1.5	https://en.wikipedia.org/wiki/Sentinel-2
NATURAL ENHANCED	B04*2+B12*0.5,B03*2+B08*0.4,B02*2.5	B04*3,B03*2+B05*.5,B02*3	IOX(R/B), N, G			(B08+B09+B10)*1+B11*.3, B06*2+(B16+B18)*.5, (B04+B05)*1.5	https://www.sentinel-hub.com/develop/documentatio
FALSE COL.URBAN-SW	B12*2,B11*3,B04*3	B07*2,B06*3,B04*3	N, NDRG((R-G)/(R+G)), B				https://sentinel.esa.int/web/sentinel/technical-guides
FALSE COL.SWIR-NIR	B12*3,B08*3,B04*3	B07*3,B05*3,B04*3	DVI(N/R), G, B				https://sentinel.esa.int/web/sentinel/user-guides/sen
FALSE COL.GEOLOGY	B12*3,B04*3,B02*3	B07*3,B04*3,B02*3					*L8:The along-track spectral band separation leads
GEOLOGY ENHANCED	B04*1+B12*1.5,B05*1.5+B08*0.5,B02*2.8	B07*2,B04*1.5+B05*0.5,B02*2.8				B20*.15+B08*1.7,B06*1.6+B17*.2,B04*2-B21*.1	This time delay creates a small but significant
AGRICULTURE	B11*3,B08*3,B02*3	B06*3,B05*3,B02*3	N/G				https://earth.esa.int/web/eoportal/satellite-missions/
BATHYMETRIC	B04*3,B03*3,B01*3	B04*3,B03*3,B01*3	(R-B)/(R+B)			(B08+B09+B10)*1, B06*3, (B02+B03)*1.5	http://www2.dgi.inpe.br/catalogo/explore