

STEPS TO OBTAIN 30M RESOLUTION SATELLITE DATA SETS FOR PARTICULAR AREA OF INTEREST.

1. Visit USGS earth explorer Website: <http://earthexplorer.usgs.gov/>
2. First time users, click on register tab.
3. Once registration is done you can login.
4. On the search criteria tab enter interested place name. For ex. Bangalore

1. Enter Search Criteria
To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the [help documentation](#)), and/or choose a date range.

Address/Place: Bangalore

Coordinates: Predefined Area, Shapefile, KML

Degree/Minute/Second, Decimal

No coordinates selected.

Use Map, Add Coordinate, Clear Coordinates

Date Range: Result Options

Search from: 01/01/1920 to: 03/23/2015

Search months: (all)

Search Criteria Summary (Show): (67° 12' 14" N, 173° 50' 51" W)

Options, Overlays, Map, Satellite

USGS Home, Contact USGS, Search USGS

1. Enter Search Criteria
To narrow your search area: type in an address or place name, enter coordinates or click the map to define your search area (for advanced map tools, view the [help documentation](#)), and/or choose a date range.

Address/Place: Bangalore

Coordinates: Predefined Area, Shapefile, KML

Degree/Minute/Second, Decimal

1. Lat: 12° 58' 17" N, Lon: 077° 35' 40" E

Use Map, Add Coordinate, Clear Coordinates

Date Range: Result Options

Search from: 01/01/1920 to: 03/23/2015

Search months: (all)

Search Criteria Summary (Show): (12° 59' 33" N, 077° 59' 43" E)

Options, Overlays, Map, Satellite

USGS Home, Contact USGS, Search USGS

5. After entering place name, select Date range. For ex. 01.01.2000 to 21.03.2015

6. Now click on datasets and choose **Landsat Archive** in the “SELECT YOUR DATA SET” tab
7. Check both L8 tabs and click on results (Note: Refer *annex3* to decide satellite and sensors)

8. Select the tab **Show metadata and browse**.

1		Path: 144 Row: 51	
2		Entity ID: LC81440512015061LGN00 Coordinates: 13.01253,77.26557 Acquisition Date: 02-MAR-15 Path: 144 Row: 51	
3		Entity ID: LC81440512015045LGN00 Coordinates: 13.01272,77.28708 Acquisition Date: 14-FEB-15 Path: 144 Row: 51	
4		Entity ID: LC81440512015061LGN00 Coordinates: 13.01257,77.27482 Acquisition Date: 29-JAN-15 Path: 144 Row: 51	

9. In the attribute table check for cloud cover. Preferably cloud cover should be less than 0.5%

4. Search Results

If you selected more than one data set, the dropdown to see the search results data set.

Show Result Controls

Data Set Click here

L8 OLI/TIRS

Entity ID: LC81440512015013LGN00
Coordinates: 13.01272,77.28708
Acquisition Date: 14-FEB-15
Path: 144
Row: 51

Entity ID: LC81440512015013LGN00
Coordinates: 13.01257,77.27482
Acquisition Date: 29-JAN-15
Path: 144
Row: 51

Entity ID: LC81440512015013LGN00
Coordinates: 13.01239,77.27482
Acquisition Date: 13-JAN-15
Path: 144
Row: 51

Entity ID: LC81440512015013LGN00
Coordinates: 13.01259,77.28504
Acquisition Date: 14-FEB-15
Path: 144
Row: 51

Search Criteria Summary (Show)

Full Display of LC81440512015013LGN00

Data Type Level 1	L1
Sensor Identifier	OLI_TIRS
Date Acquired	2015/01/13
Start Time	2015:01:13:05:10:38.9203160
Stop Time	2015:01:13:05:11:10.6903120
Image Quality	9
Scene Cloud Cover	02
Sun Elevation	48.46350000
Sun Azimuth	142.01628159
Geometric RMSE Model X	6.184
Geometric RMSE Model Y	5.56
Browse Exists	Y
Processing Software Version	LPGS_2.4.0
Center Latitude	13°00'44.60"N
Center Longitude	77°16'27.95"E
NW Corner Lat	14°03'33.26"N
NW Corner Long	76°36'18.58"E
NE Corner Lat	13°41'51.54"N
NE Corner Long	78°19'29.96"E
SE Corner Lat	11°57'21.42"N

Open New Window Close

10. Now click on **Download options** tab and select Level 1 GeoTIFF Data Product to download.

L8 OLI/TIRS

Entity ID: LC81440512015046LGN00
Coordinates: 13.01272,77.28708
Acquisition Date: 14-FEB-15
Path: 144
Row: 51

Entity ID: LC81440512015029LGN00
Coordinates: 13.01257,77.27482
Acquisition Date: 29-JAN-15
Path: 144
Row: 51

Download Options

- Download LandsatLook "Natural Color" Image (5.2 MB)
- Download LandsatLook "Thermal" Image (668.2 KB)
- Download LandsatLook "Quality" Image (156.6 KB)
- Download LandsatLook Images with Geographic Reference (6.0 MB)
- Download Level 1 GeoTIFF Data Product (777.8 MB)

DONE!!! YOUR DATA WILL BE DOWNLOADED IN FEW MINS.

Annex1: *Landsat 8 bands*

Landsat 8 Operational Land Imager (OLI) and Thermal Infrared Sensor (TIRS)	Bands	Wavelength (micrometers)	Resolution (meters)
Band 1 - Ultra Blue (coastal/aerosol)	0.43 - 0.45	30	
Band 2 - Blue	0.45 - 0.51	30	
Band 3 - Green	0.53 - 0.59	30	
Band 4 - Red	0.64 - 0.67	30	
Band 5 - Near Infrared (NIR)	0.85 - 0.88	30	
Band 6 - Shortwave Infrared (SWIR) 1	1.57 - 1.65	30	
Band 7 - Shortwave Infrared (SWIR) 2	2.11 - 2.29	30	
Band 8 - Panchromatic	0.50 - 0.68	15	
Band 9 - Cirrus	1.36 - 1.38	30	
Band 10 - Thermal Infrared (TIRS) 1	10.60 - 11.19	100 * (30)	
Band 11 - Thermal Infrared (TIRS) 2	11.50 - 12.51	100 * (30)	

* TIRS bands are acquired at 100 meter resolution, but are resampled to 30 meter in delivered data product.

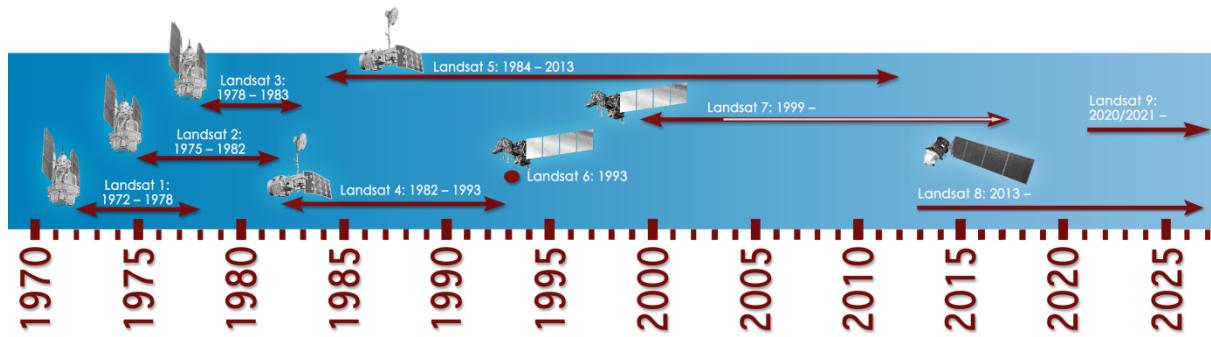
Satellite	Sensor	Bandwidths	Resolution	Satellite	Sensor	Bandwidths	Resolution
LANDSATs 1-2	RBV	(1) 0.48 to 0.57	80	LANDSATs 4-5	MSS	(4) 0.5 to 0.6	82
		(2) 0.58 to 0.68	80			(5) 0.6 to 0.7	82
		(3) 0.70 to 0.83	80			(6) 0.7 to 0.8	82
	MSS	(4) 0.5 to 0.6	79		TM	(7) 0.8 to 1.1	82
		(5) 0.6 to 0.7	79			(1) 0.45 to 0.52	30
		(6) 0.7 to 0.8	79			(2) 0.52 to 0.60	30
		(7) 0.8 to 1.1	79			(3) 0.63 to 0.69	30
LANDSAT 3	RBV	(1) 0.505 to 0.75	40		ETM ⁺	(4) 0.76 to 0.90	30
		(4) 0.5 to 0.6	79			(5) 1.55 to 1.75	30
	MSS	(5) 0.6 to 0.7	79	LANDSAT 7	ETM ⁺	(6) 10.4 to 12.5	120
		(6) 0.7 to 0.8	79			(7) 2.08 to 2.35	30
		(7) 0.8 to 1.1	79			(1) 0.45 to 0.52	30
		(8) 10.4 to 12.6	240			(2) 0.52 to 0.60	30
						(3) 0.63 to 0.69	30
						(4) 0.76 to 0.90	30
						(5) 1.55 to 1.75	30
						(6) 10.4 to 12.5	60
						(7) 2.08 to 2.35	30
						PAN 0.50 to 0.90	15

Landsat-7 ETM+ Bands (μm)			Landsat-8 OLI and TIRS Bands (μm)		
			30 m Coastal/Aerosol	0.435 - 0.451	Band 1
Band 1	30 m Blue	0.441 - 0.514	30 m Blue	0.452 - 0.512	Band 2
Band 2	30 m Green	0.519 - 0.601	30 m Green	0.533 - 0.590	Band 3
Band 3	30 m Red	0.631 - 0.692	30 m Red	0.636 - 0.673	Band 4
Band 4	30 m NIR	0.772 - 0.898	30 m NIR	0.851 - 0.879	Band 5
Band 5	30 m SWIR-1	1.547 - 1.749	30 m SWIR-1	1.566 - 1.651	Band 6
Band 6	60 m TIR	10.31 - 12.36	100 m TIR-1	10.60 – 11.19	Band 10
			100 m TIR-2	11.50 – 12.51	Band 11
Band 7	30 m SWIR-2	2.064 - 2.345	30 m SWIR-2	2.107 - 2.294	Band 7
Band 8	15 m Pan	0.515 - 0.896	15 m Pan	0.503 - 0.676	Band 8
			30 m Cirrus	1.363 - 1.384	Band 9

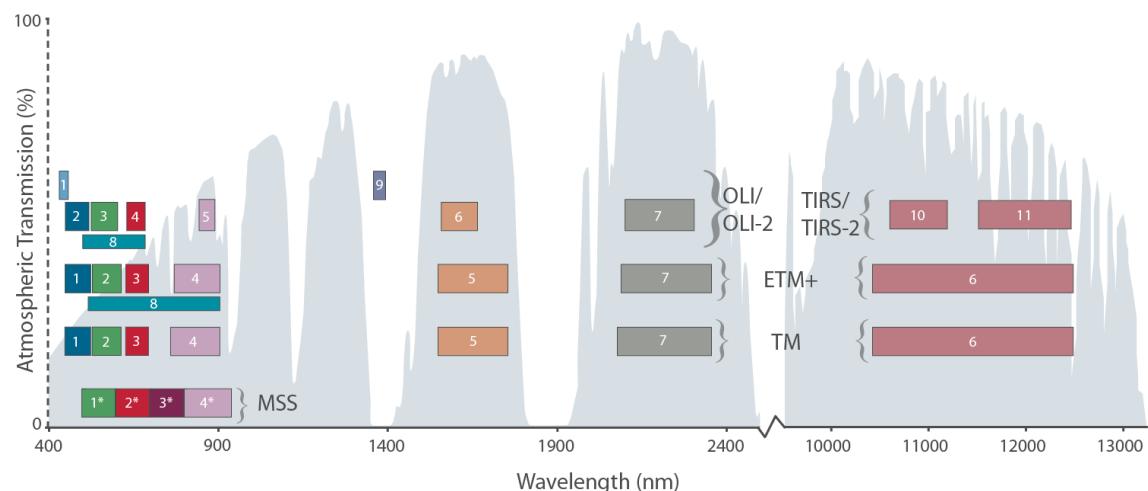
Annex2: Landsat series - sensors

Satellite	Launch	Decommissioned	Sensors
Landsat 1	July 23, 1972	January 6, 1978	MSS/RBV
Landsat 2	January 22, 1975	July 27, 1983	MSS/RBV
Landsat 3	March 5, 1978	September 7, 1983	MSS/RBV
Landsat 4	July 16, 1982	June 15, 2001	MSS/TM
Landsat 5	March 1, 1984	2013	MSS/TM
Landsat 6	October 5, 1993	Did not achieve orbit	ETM
Landsat 7	April 15, 1999	Operational	ETM+
Landsat 8	February 11, 2013	Operational	OLI/TIRS

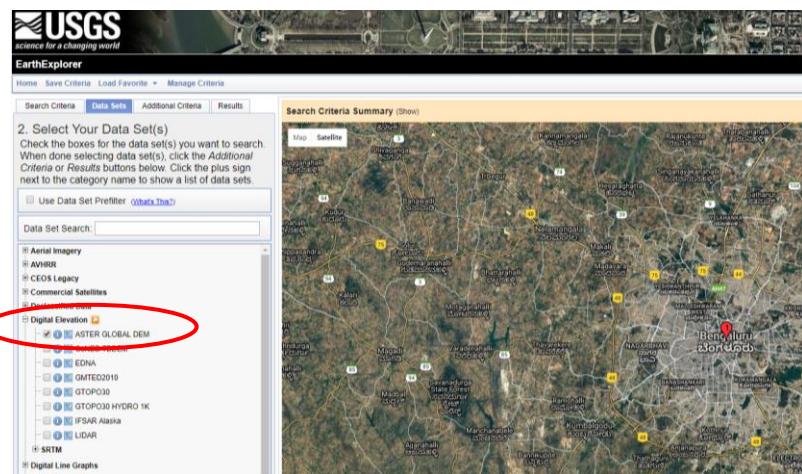
Annex3: Landsat series time line



Annex4: The Multispectral Scanner System (MSS) aboard Landsats 1–5 had four bands. The Thematic Mapper (TM) aboard Landsats 4 & 5 had seven bands. Landsat 7's Enhanced Thematic Mapper Plus (ETM+) has 8 bands and Landsats 8 & 9 have 11 bands. The atmospheric transmission values for this graphic were calculated using MODTRAN for a summertime mid-latitude hazy atmosphere (circa 5 km visibility).



Similarly for DEM data, choose ASTER Global DEM under **Digital Elevation** tab.



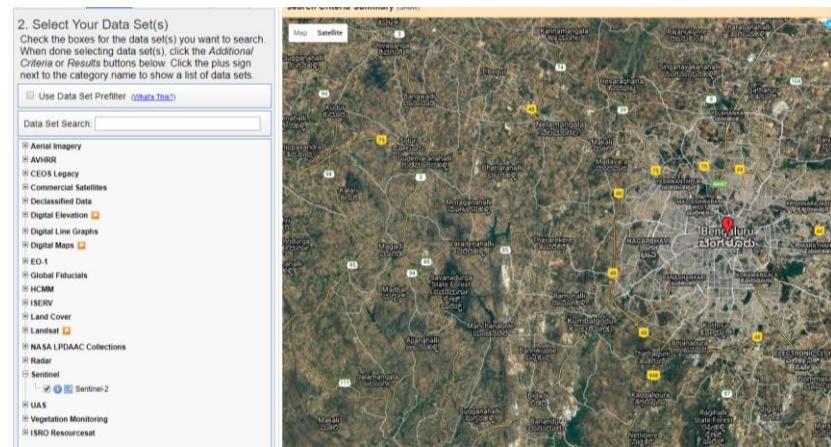
2. Select Your Data Set(s)
Check the boxes for the data set(s) you want to search. When done selecting data set(s), click the Additional Criteria or Results buttons below. Click the plus sign next to the category name to show a list of data sets.

Use Data Set Prefilter ([What's This?](#))

Data Set Search:

- Aerial Imagery
- AVHRR
- CEOS Legacy
- Commercial Satellites
- Declassified Data
- Digital Elevation 
- EDNA
- GTOPO2010
- GTOPO30
- GTOPO30 HYDRO 1K
- IFBAR Alaska
- LiDAR
- SRTM
- Digital Line Graphs

Similarly for Sentinel data, choose Sentinel-2 under **Sentinel** tab.



2. Select Your Data Set(s)
Check the boxes for the data set(s) you want to search. When done selecting data set(s), click the Additional Criteria or Results buttons below. Click the plus sign next to the category name to show a list of data sets.

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Data Set Search:

- Aerial Imagery
- AVHRR
- CEOS Legacy
- Commercial Satellites
- Declassified Data
- Digital Elevation 
- Digital Line Graphs
- Digital Maps 
- EO-1
- Global Fiducials
- HCOM
- ISERV
- Land Cover
- Landstat 
- NASA LPDAAC Collections
- Radar
- Sentinel 
- UAS
- Vegetation Monitoring
- ISRO ResourceSat