

## QuickBird

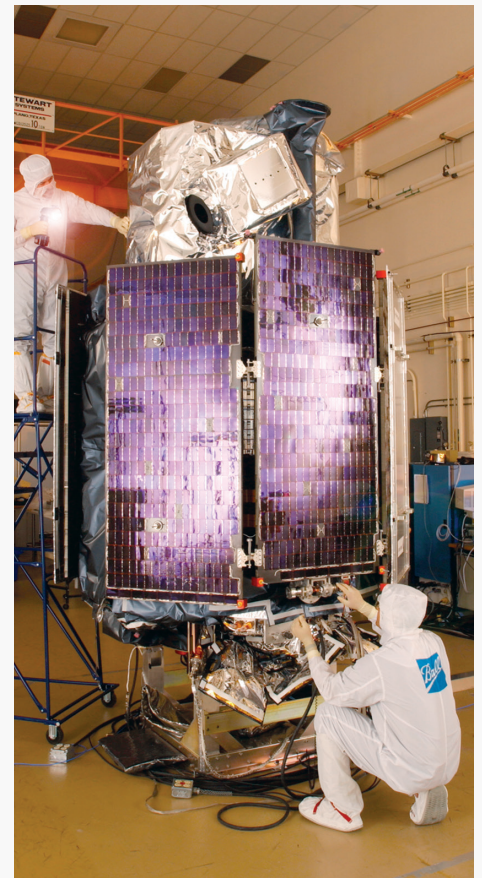
DigitalGlobe's QuickBird satellite offers sub-meter resolution imagery, high geolocational accuracy, and large on-board storage. With global collection of panchromatic and multispectral imagery, QuickBird is designed to support a wide range of geospatial applications. Previously at an operational altitude of 482 km, QuickBird is currently operating at an altitude of 450 km and will continue in an gradual descent until its end of mission life at an altitude of 300 km.

### Features

- » Sub-meter resolution imagery
  - 61 cm panchromatic at nadir
  - 2.44 m multispectral at nadir
- » High geolocational accuracy
  - Stable platform for precise location measurement
- » Fast large area collection
  - 16.8 km width imaging swath
- » High image quality
  - Off-axis unobscured design of QuickBird's telescope - Large field-of-view
  - High contrast (MTF)
  - High signal to noise ratio
- » Large on-board data storage
  - 128 gigabits on-board image storage capacity

### Benefits

- » Acquire high quality satellite imagery for map creation, change detection, and image analysis
- » Geolocate features to create maps in remote areas without the use of ground control points
- » Collect a greater supply of frequently updated global imagery products
- » Extend the range of suitable imaging collection targets and enhance image interpretability



QuickBird clean room pre-launch preparations. The first of DigitalGlobe's state-of-the-art high-resolution commercial imagery satellites.

## Design and specifications

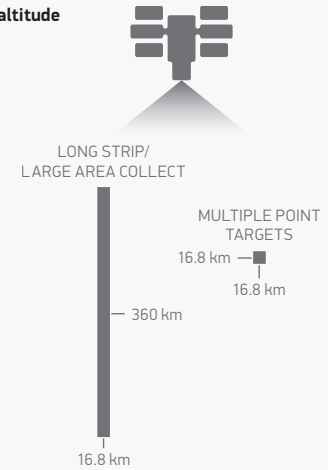
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|---------------------------|--|
| <b>Launch information</b> | Date: October 18, 2001<br>Launch vehicle: Delta II<br>Launch site: SLC-2W, Vandenberg Air Force Base, California |
| <b>Mission life</b>       | Extended through mid 2014  |
| <b>Spacecraft size</b>    | 2400 lbs, 3.04 m (10 ft) in length   |

|   | Altitude 450 km   | Altitude 300 km  |
|---|---|--|
| <b>Orbit</b>                                    | Type: Sun-synchronous,<br>10:00 am descending node<br>Period: 93.6 min  | 10:00 am descending node<br>Period: 90.4 min                                   |
| <b>Sensor resolution and spectral bandwidth</b> | Panchromatic:<br>61 cm GSD at nadir<br>Black & White: 405 - 1053 nm<br><br>Multispectral:<br>2.44 m GSD at nadir<br>Blue: 430 - 545 nm<br>Green: 466 - 620 nm<br>Red: 590 - 710 nm<br>Near-IR: 715 - 918 nm | Panchromatic<br>41 cm GSD at nadir<br><br>Multispectral<br>1.63 m GSD at nadir |
| <b>Dynamic range</b>                            | 11-bits per pixel   |  |
| <b>Swath width</b>                              | Nominal swath width:<br>16.8 km at nadir  | Nominal swath width:<br>11.2 km at nadir                                       |
| <b>Attitude determination and control</b>       | Type: 3-axis stabilized<br>Star tracker/IRU/reaction wheels, GPS  |  |
| <b>Retargeting agility</b>                      | Time to slew 200 km: 38 sec   | 44 sec   |
| <b>Onboard storage</b>                          | 128 Gb capacity   |  |
| <b>Communications</b>                           | Payload data: 320 Mbps X-band<br>Housekeeping: X-band from 4, 16 and 256 Kbps, 2 Kbps S-band uplink   |  |
| <b>Revisit frequency (at 40°N latitude)</b>     | 2.4 days at 1 m GSD or less<br>5.9 days at 20° off-nadir or less  | 2.1 days at 1 m GSD or less<br>8.7 days at 20° off-nadir or less               |
| <b>Metric accuracy</b>                          | 23 m CE90, 17 m LE90 (without ground control)   |  |
| <b>Capacity</b>                                 | 200,000 km <sup>2</sup> per day   | 100,000 km <sup>2</sup> per day  |

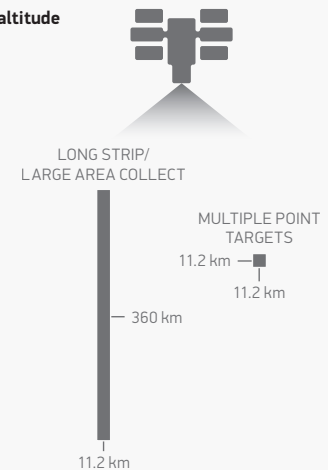
## Collection scenarios

(at nadir)

450 km altitude



300 km altitude



## Sensor bands

-  Panchromatic
-  Multispectral