# ORBITER Credits & Contributions

In alphabetical order. Last updated 06 July 2010.
The list is complete to the best of my knowledge. For corrections or omissions please contact Martin Schweiger.

**Special thanks go to all beta testers of the Orbiter 2010 Edition for their invaluable help, and to all users who contributed suggestions and bug reports.**

**Steve Albers**
laps.noaa.gov/albers/sos/sos.html

- Io surface map
  Created from Voyager and Galileo data
  Included since: 060428
- Iapetus surface map
  Modified for Orbiter by Rolf Keibel
  Lightened to show detail
  empty areas filled with fictional coverage
  Included since: 060428
- Mimas surface map
  http://laps.noaa.gov/albers/sos/saturn/mimas/mimas_rgb_cyl_www.png
  Format: 4096x2048 PNG
  Download date: 6 July 2010
  Included since: 100706
  Author's notes:
  > A map of Mimas I constructed by reprojecting and overlaying about 20 Cassini images (including one mosaic) on top of a Voyager map of Mimas created by Paul Schenk of the Lunar and Planetary Institute. The Cassini images are from NASA/JPL/Space Science Institute.

**Steve Arch**
http://orbiter.quorg.org

- TransX development
  Included since: 091108

**Jason Benson ("agent036")**

- New Mir model
  Included since: version 021201

**P. Bretagnon, G. Francou**
Bureau des Longitudes, CNRS URA 707
pierre@bdl.fr francou@bdl.fr

- VSOP87
  Planetary perturbation terms for Mercury to Neptune
  Download date: 17 August 2001

**M. Chapront-Touze, J. Chapront**
Bureau des Longitudes, CNRS URA 707
77, Avenue Denfert-Rochereau
75014, Paris, France

- Lunar Solution ELP 2000-82B (Semi-analytical lunar ephemerides)
  Ref:
  Astron. Astrophys. 124, 50 (1983)
  Astron. Astrophys. 190, 342 (1988)

**Robert Conley ("estar")**

- Atlantis module extensions:
  Movable arm and grappling, including MMU and Satellite extensions
- Atlantis documentation
  Included since: version 021201

**Elwood Downey**
www.clearskyinstitute.com/xephem/xephem.html

- Lunar ephemeris
  Perturbation terms for lunar positions.

**Andrew Farnaby**

- Project Alpha ISS model
  Included since: version 030527

**Javier Fernandez**

- Cape Canaveral surface textures and structural elements

**Don Gallagher**

- Space Shuttle Atlantis Orbiter model:
  mesh and textures extensions
  Included since: version 060925
- LDEF mesh and textures
  Included since: version 031103

**Michael Grosberg**

- Space Shuttle Atlantis mesh and textures
  Included since: version 060925

**Damir Gulesich**

- Space Shuttle External Tank and Solid Rocket Booster mesh and textures.
  Included since: version 031103

**James Hastings-Trew**
http://apollo.spaceports.com/~jhasting/

- Phobos and Deimos meshes
  Download date: 12 March 01
  Author note:
  Meshes are downsampled versions of OpenUniverse Objects
- Uranus map
  Format: 1024x512 Jpeg
  Download date: 2000
  Author note:
  Painted pretty much from scratch based on images found around the internet.
- Uranus ring data:
  Download date: 2000
- Neptune map
  Format: 1024x512 Jpeg
  Download date: 2000

Author note:
Painted pretty much from scratch based on images found around the internet.

**Seth Hollingsead**
http://www.OrbitersimLandSAT.com
Iceversaka@hotmail.com

- Mars surface map optimisation and adaptation for Orbiter
  Included since: version 060221

**David Hopkins**

- Space Shuttle Atlantis module code extensions
  Included since: version 031103

**IAU/IAG Working Group**

- Planetary precession parameters
  Report of the IAU/IAG Working Group on cartographic coordinates and rotational elements 2006, http://www.springerlink.com/content/e637756732j60270/

**IAU SOFA C Library**
http://www.iausofa.org/

- Earth precession parameters

**Jet Propulsion Laboratory Multimission Image Processing Laboratory**
Solar System Visualization Project and Magellan science team

- Venus surface map
  Format: 5120x2560 Tiff
  Download date: 22 September 03 (original: p45187.tif)
  Composite of Magellan synthetic aperture radar mosaics.
  Author note:
  Data gaps are filled with Pioneer-Venus Orbiter altimetric data, or a constant mid-rannge value. Simulated color is used to enhance small-scale structure. The simulated hues are based on color images recorded by the Soviet Venera 13 and 14 spacecraft.

**Björn Jónsson**
http://www.mmedia.is/~bjj

- Venus cloud map
  Format: 1800x900 Jpeg
  Download date: 12 March 01
- Saturn map
  Format: 1800x900 Jpeg
  Download date: 12 March 01
  Author note: *"Created from Voyager data with some artistic interpretation"*
- Saturn ring data
  Download date: 9 March 01
  Author note: *"Created from Voyager images"*
- Callisto surface map
  Format: 1800x900 Jpeg
  Download date: 29 April 2006
  Release notes:
  This map of Callisto was created from images obtained by the Voyager and Galileo spacecraft. Most of these had a resolution of 0.7-4 km/pixel. The main exception is that lower resolution images were used to colorize the map. The main reasons are that Callisto has not been globally imaged in color at high resolution and the weird color filter combination used for imaging at high resolution.

**Rolf Keibel**

- Jupiter texture map
- Jupiter cloud map
  created/edited for Orbiter from CICLOPS maps
- Saturn texture map
  edited for Orbiter
- Triton texture map
  based on Voyager photos
- Uranus texture map
- Misc:
  Various planet configuration file modifications

  The standard Orbiter distribution contains a subset of Rolf Keibel's 'Outer Planets' addon.

**Roger "Frying Tiger" Long**

- DeltaGlider and DG-S mesh and virtual cockpit
  Included since: version 020418
  Updated and extended version, included since: version 050116
- Dragonfly mesh improvements and textures
  Included since: version 021201
- Shuttle-A mesh
  Included since: version 021201

**"McWgogs"**
http://mcwgogs.deviantart.com/

- Cloud microtexture
  Included since: 060518
  Sizes: 512x512 and 256x256 DXT3 adapted from original 512x512 ARGB version.
- Default exhaust texture
  Included since: 080516
  DXT5 adapted from original ARGB version.

**Jens Mayer**
http://home.arcor.de/jimpage/

- Moon map
  Format: 8192x4096 Jpeg
  Download date: 19 August 03

**NASA/JPL/Space Science Institute**

- Enceladus surface map
  http://photojournal.jpl.nasa.gov/catalog/PIA07777
  Format: 14396x7198 Jpeg
  Download date: 20 March 2006
  Included since: 060320
  Release notes:

  > This global digital map of Saturn's moon Enceladus was created using data taken during Cassini and Voyager spacecraft flybys. The map is an equidistant projection and has a scale of 110 meters (361 feet) per pixel.
  > The mean radius of Enceladus used for projection of this map is 252 kilometers (157 miles). The resolution of the map is 40 pixels per degree. [...]
  > Mission: Cassini
  > Spacecraft: Cassini Orbiter

Instrument: Imaging Science Subsystem
Product Size 14960 samples x 7860 lines
Produced by: Cassini Imaging Team

- Tethys surface map
  http://photojournal.jpl.nasa.gov/catalog/PIA07781
  Format: 11496x5748 Jpeg
  Download date: 20 March 2006
  Included since: 060320
  Release notes:
  This global digital map of Saturn's moon Tethys was created using data taken during Cassini and Voyager spacecraft flybys. The map is an equidistant projection and has a scale of 293 meters (961 feet) per pixel. The mean radius of Tethys used for projection of this map is 536 kilometers (333 miles). The resolution of the map is 32 pixels per degree. [...]
  Mission: Cassini
  Spacecraft: Cassini Orbiter
  Instrument: Imaging Science Subsystem
  Product Size 12068 samples x 6408 lines
  Produced by: Cassini Imaging Team

- Dione surface map
  http://photojournal.jpl.nasa.gov/catalog/PIA07776
  Format: 5192x2596 Jpeg
  Download date: 20 March 2006
  Included since: 060320
  Release notes:
  This global digital map of Saturn's moon Dione was created using data taken during Cassini and Voyager spacecraft flybys. The map is an equidistant projection and has a scale of 977 meters (3,205 feet) per pixel. The mean radius of Dione used for projection of this map is 560 kilometers (348 miles). The resolution of the map is 10 pixels per degree. [...]
  Mission: Cassini
  Spacecraft: Cassini Orbiter
  Instrument: Imaging Science Subsystem
  Product Size 5750 samples x 3244 lines
  Produced by: Cassini Imaging Team

- Rhea surface map
  http://photojournal.jpl.nasa.gov/catalog/PIA07780
  Format: 7199x3552 Jpeg
  Download date: 20 March 2006
  Included since: 060320
  Release notes:
  This global digital map of Saturn's moon Rhea was created using data taken during Cassini and Voyager spacecraft flybys. The map is an equidistant projection and has a scale of 667 meters (2,188 feet) per pixel. The mean radius of Rhea used for projection of this map is 764 kilometers (475 miles). The resolution of the map is 20 pixels per degree. [...]
  Mission: Cassini
  Spacecraft: Cassini Orbiter
  Instrument: Imaging Science Subsystem
  Product Size 7700 samples x 4200 lines
  Produced by: Cassini Imaging Team

**Valerio Oss**

- KSC VAB mesh
  Included since: version 021201

**Balázs Patyi**
patyibalazs@yahoo.com

- PTV (Personal transport vehicle) mesh
  Included since: version 010706

**Radu Poenaru**

- Dragonfly electrical and environmental simulation, Dragonfly panels
  Included since: version 021201

- Shuttle-A virtual cockpit and cargo management
  Included since: version 050207

**Carl Romanik ("Chode")**
Ephemeris module implementations:

- Phobos and Deimos
  Code based on: Sinclair, Astron. Astrophys. 220, 321 (1989)
  Comment:
  Testing against Horizons shows agreement within 20km for Phobos, 50km for Deimos for 2000-2024.
- Uranus' moons (Miranda, Ariel, Umbriel, Titania, Oberon)
  Code based on: Laskar and Jacobson, Astron. Astrophys. 188, 212 (1987)
  Comment:
  According to the Horizons documentation, this is the same theory they use for Uranus, and the agreement of the DLLs with Horizons looks to be within about 50km.
- Triton:
  Code based on: Jacobson et al., Astron. Astrophys. 247, 565 (1991)
  Comment:
  This also appears to be what Horizons use, and the DLL agrees within about 1000km.

**Mario Rossi**

- Mars surface map
  www.Space-Graphics.com
  Pre-release Mars-M46 V2
  www.space-graphics.com/m46v2_shaded.htm
  Additional Sources:
  www.space-graphics.com/credits.htm
  MOLA Science team - Mars Orbiter Laser Altimeter (MOLA) Science Investigation
  NASA/JPL/Caltech - Solar system surface map database
  NGDC - National Geophysical Data Center
  USGS - U.S. Geological Survey
  Included since: version 060221

**Dean A. Scott**

- Earth cloud map
  Format: 4096x2048 Jpeg
  Download date: 16 July 01

**Duncan Sharpe**

- TransX MFD mode module
  Included since: version 031103

**Robert Stettner**

- Uranus & Neptune major moons:
  Miranda, Ariel, Umbriel, Titania, Oberon, Triton, Proteus, Nereid
  Included since: version 021201
  Author note:
  Special Thanks go to JPL and their Planetary Satellite Mean Orbital Parameters and Moon Maps, as well as the developing Orbiter Community, for providing assistance and great support!!!"

**Philip J. Stooke**
Dept. of Geography, University of Western Ontario,
London, Ontario, Canada N6A 5C2
http://www.ssc.uwo.ca/geography/spacemap

- Phobos map
  Format: 600x300 Jpeg
  Download date: 27 July 01
- Deimos map
  Format: 800x400 Jpeg
  Download date: 27 July 01

**David Sundstrom**

- Hubble Space Telescope (HST) model.
  Included since version 031103

**Constantine Thomas**
http://www.btinternet.com/~consty

- Jupiter map
  Format: 1024x512 Jpeg
  Download date: 12 March 01
  Author note:
  Constructed from Voyager data (JPL/NASA)

**USGS**
Astrogeology Research Program
Planetary Geomatics Group
Gazetteer of Planetary Nomenclature
http://planetarynames.wr.usgs.gov/

- Mercury surface labels
- Mars surface labels
- Io surface labels
- Europa surface labels
- Ganymede surface labels
- Callisto surface labels
  Included since: 060428

**Visible Earth/NASA**
http://visibleearth.nasa.gov/

- Earth surface map
  Format: 8192x4096 TIFF
  Location: http://visibleearth.nasa.gov/cgi-bin/viewrecord?11612
  Download date: 18 February 2002

  NASA Goddard Space Flight Center Image by Reto Stvckli (land surface, shallow water, clouds). Enhancements by Robert Simmon (ocean color, compositing, 3D globes, animation). Data and technical support: MODIS Land Group; MODIS Science Data Support Team; MODIS Atmosphere Group; MODIS Ocean Group. Additional data: USGS EROS Data Center (topography); USGS Terrestial Remote Sensing Flagstaff Field Center (Antarctica); Defense Metereological Satellite Program (city lights).
- KSC area high resolution surface tiles from Landsat 7 imagery
  available from the Visible Earth site.

**John Van Vliet**

- Titan surface map
  Conversion of JPL map by Dr. Fridger Schrempp (CICLOPS)

http://www.planetary.org/saturn/images/
titan_map_mosaic_schrempp_050414_512x256.jpg
Included since: 060320

**Richard Wall**
ricwall@gmail.com

- Land-water masks for Cape Canaveral surface tiles
  Included since: 060428

**James S Williams**

- Venus surface and cloud textures
  Included since version 031103
- Mercury textures
  Included since version 050116