APPENDIX B

Successful Launches to Orbit on U.S. Launch Vehicles
October 1, 1997–September 30, 1998

Launch Date Spacecraft Name COSPAR Designation Launch Vehicle	Mission Objectives	Apogee and Perigee (km), Period (min), Inclination to Equator (°)	Remarks
Oct. 5, 1997 EchoStar 3 59A Atlas IIAS*	Communications satellite	Geosynchronous	
Oct. 15, 1997 Cassini 61A Titan IVB	Interplanetary spacecraft to orbit Saturn		
Oct. 22, 1997 STEP-4 63A Pegasus XL	Military satellite	495 km 429 km 1 hour 34 minutes 44.9˚	Space Test Experimental Program 4
Oct. 24, 1997 USA 133 64A Atlas IIA	Military satellite	Orbital parameters unavailable	
Oct. 25, 1997 DSCS 3 65A Atlas IIA	Military satellite	Orbital parameters unavailable	Defense Satellite Communications System 3
Nov. 6, 1997 Navstar 38 (USA 135) 67A Delta II	GPS satellite	20,644 km 19,923 km 12 hours 2 minutes 54.9˚	
Nov. 7, 1997 USA 136 68A Titan IVA	Military satellite	Orbital parameters unavailable	
Nov. 8, 1997 Iridium 38–41, 43 69A–E Delta II*	Communications satellite	650 km 635 km 1 hour 37 minutes 86.6˚	
Nov. 19, 1997 Space Shuttle *Columbia* (STS-87) 73A Space Shuttle	Carry out EVA's as training for ISS spacewalks	286 km 280 km 1 hour 30 minutes 28.4˚	Payloads included USMP-4, SPARTAN 201-04 free- flyer, CUE in space biology, and several other "hitchhiker" payloads.
Nov. 21, 1997 SPARTAN 201-04 73B Space Shuttle	Reusable solar observatory	Orbital parameters similar to those of STS-87	Recaptured manually by spacewalking astronauts

APPENDIX B

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Successful Launches to Orbit on U.S. Launch Vehicles

October 1, 1997–September 30, 1998

Launch Date Spacecraft Name COSPAR Designation Launch Vehicle	Mission Objectives	Apogee and Perigee (km), Period (min), Inclination to Equator (°)	Remarks
Dec. 8, 1997 Galaxy 8 78A Atlas IIAS*	Communications satellite	Geosynchronous	
Dec. 20, 1997 Iridium 45–49 82A–E Delta II*	Communications satellites	642 km 633 km 1 hour 37 minutes 86.6°	
Dec. 23, 1997 Orbcomm FM 84A–H Pegasus*	Relay GPS signals	834 km 824 km 1 hour 41 minutes 45°	
Jan. 6, 1998 Lunar Prospector 1A Delta II*	Lunar orbiter		
Jan. 9, 1998 Skynet-4D 2A Delta II*	British military communications satellite	Geosynchronous	
Jan. 22, 1998 Space Shuttle *Endeavour* (STS-89) 3A Space Shuttle	Eighth Shuttle docking mission to *Mir*	385 km 379 km 1 hour 32 minutes 51.7°	Andrew Thomas replaced David Wolf on *Mir*. Shuttle payloads included SPACEHAB double module of science experiments.
Jan. 29, 1998 Capricorn (USA 137) 5A Atlas IIA	Military photo/radar imagingsatellite	Initial apogee and perigee of 38,400 km and 320 km, respectively	NRO satellite
Feb. 10, 1998 Geosat Follow-On 7A Taurus*	Military Earth science satellite	878 km 775 km 1 hour 41 minutes 108°	
Feb. 10, 1998 Orbcomm FM-3, FM-4 7B, 7C Taurus*	Communications satellite	878 km 784 km 1 hour 41 minutes 108°	
Feb. 10, 1998 Celestis 2 7D Taurus*	Funeral ashes disposal	Disintegrated with launch vehicle upon atmospheric reentry	

APPENDIX B

(Continued)

Successful Launches to Orbit on U.S. Launch Vehicles

October 1, 1997–September 30, 1998

Launch Date Spacecraft Name COSPAR Designation Launch Vehicle	Mission Objectives	Apogee and Perigee (km), Period (min), Inclination to Equator (°)	Remarks
Feb. 14, 1998 Globalstar L-1, L-2, U-1, U-2 8A–D Delta II*	Communications satellite	1,258 km 1,245 km 1 hour 52 minutes 52°	
Feb. 18, 1998 Iridium 50, 52–54, 56 10A–E Delta II*	Communications satellites	643 km 625 km 1 hour 37 minutes 86.5°	
Feb. 25, 1998 SNOE 12A Pegasus XL*	Student science satellite	580 km 535 km 1 hour 36 minutes 97.7°	Student Nitric Oxide Explorer
Feb. 27, 1998 INTELSAT 806 14A Atlas IIAS*	International consortium's communications satellite	Geosynchronous	
Mar. 16, 1997 UHF F/O F8 (USA 137) 126A Atlas IIAS*	Military communications satellite	Geosynchronous	
Mar. 29, 1998 Iridium 55, 57–60 19A–E Delta II*	Communications satellites	635 km 620 km 1 hour 37 minutes 86°	
Apr. 1, 1998 TRACE 20A Pegasus XL	Solar physics science satellite	644 km 597 km 1 hour 37 minutes 97.8°	Transition Region and Coronal Explorer
Apr. 17, 1998 Space Shuttle *Columbia* (STS-90) 22A Space Shuttle	Carry Neurolab module for microgravity research in the human nervous system	286 km 257 km 1 hour 30 minutes 39°	Secondary goals included measurement of Shuttle vibration forces, demonstration of the bioreactor system for cell growth, and three Get Away Special payloads.
Apr. 24, 1998 Globalstar 5–8 23A–D Delta II*	International consortium's communications satellites	1,253 km 1,236 km 1 hour 51 minutes 52°	

APPENDIX B

(Continued)

Successful Launches to Orbit on U.S. Launch Vehicles

October 1, 1997–September 30, 1998

Launch Date Spacecraft Name COSPAR Designation Launch Vehicle	Mission Objectives	Apogee and Perigee (km), Period (min), Inclination to Equator (°)	Remarks
May 9, 1998 USA 139 29A Titan IVB	Military reconnaissance satellite	Orbital parameters unavailable	NRO satellite
May 13, 1998 NOAA 15 (NOAA-K) 30A Titan II	Weather satellite	824 km 808 km 1 hour 41 minutes 98.7°	Replacement for decommissioned NOAA 12 satellite
May 17, 1998 Iridium 70, 72–75 32A–E Delta II*	Communications satellites	670 km 665 km 1 hour 38 minutes	Completed constellation of 66 operational and 6 reserve satellites
June 2, 1997 Space Shuttle *Discovery* (STS-91) 34A	Last of nine docking missions with *Mir*	330 km 326 km 1 hour 31 minutes 51.7°	Mission brought home Andrew Thomas. Payloads included DoE's Alpha Magnetic Spectrometer (AME) to study high-energy particles from deep space, four Get Away Specials, and two Space Experiment Modules.
June 10, 1998 Thor 3 35A Delta II*	Norwegian communications satellite	Geosynchronous	
June 18, 1998 INTELSAT 805 37A Atlas IIAS*	International consortium's communications satellite	Geosynchronous	
Aug. 2, 1998 Orbcomm FM-13–20 46A–H Pegasus XL*	Communications satellite	826 km 816 km 1 hour 41 minutes 45°	
Sep. 8, 1998 Iridium 77, 79–82 51A–E Delta II*	Communications satellites	540 km 520 km 1 hour 35 minutes 86°	Replacements for dysfunctional members of the fleet
Sep. 23, 1998 Orbcomm FM-21–27 53A–H Pegasus XL*	Communications satellites	830 km 820 km 1 hour 41 minutes 45°	

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