

**FAA** Commercial Space Transportation

# Quarterly Launch Report 4th Quarter 2006

Featuring Launch Results from the 3rd Quarter 2006 and Forecasts for the 4th Quarter 2006 and 1st Quarter 2007

Special Report: Waivers of Liability: Are They Enough for Permittees and Licensees?

#### Introduction

The Fourth Quarter 2006 Quarterly Launch Report features launch results from the third quarter of 2006 (July-September 2006) and forecasts for the fourth quarter of 2006 (October-December 2006) and the first quarter of 2007 (January-March 2007). This report contains information on worldwide commercial, civil, and military orbital and commercial suborbital space launch events. Projected launches have been identified from open sources, including industry references, company manifests, periodicals, and government sources. Projected launches are subject to change.

This report highlights commercial launch activities, classifying commercial launches as one or both of the following:

- Internationally-competed launch events (i.e., launch opportunities considered available in principle to competitors in the international launch services market)
- Any launches licensed by the Office of Commercial Space Transportation of the Federal Aviation Administration under 49 United States Code Subtitle IX, Chapter 701 (formerly the Commercial Space Launch Act)

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Cover (photo courtesy of Sea Launch, copyright © 2006): On August 21, 2006, a Sea Launch Zenit 3SL vehicle lifts off from Odyssey Launch Platform in the Pacific Ocean carrying Koreasat 5, a commercial communications satellites operated by Korea Telecom.

#### Third Quarter 2006 Highlights

On July 10, an Indian Geosynchronous Launch Vehicle (GSLV) carrying the payload Insat 4C veered off course 55 seconds after liftoff from a launch pad at Sriharikota. Following an investigation, in September the Indian Space Research Organization (ISRO) attributed this first GSLV launch failure to a loss of thrust in one of the vehicle's four liquid propellant strap-on boosters caused by a faulty propellant regulator.

On July 12, Russia inaugurated a new spaceport with the launch of a Dnepr rocket from Dombarovskiy, a converted ICBM site located in the south of the country near its border with Kazakhstan. The Dnepr vehicle successfully carried Bigelow Aerospace's Genesis Pathfinder inflatable demonstration mission into low Earth orbit (LEO).

On July 26, a separate Dnepr launch from Baikonur Cosmodrome failed when its engines prematurely terminated 86 seconds into flight, causing the vehicle to crash 25 kilometers (15 miles) downrange. Three small satellites from Russia and Italy and several one-kilogram "CubeSats" were lost.

In July, the Russian space agency Roscosmos announced plans to enhance its commercial competitiveness by streamlining its constituent organizations into 10 integrated departments by 2010 and three or four corporations by 2015. Roscosmos hopes the reorganization will boost productivity by 30 to 40 percent.

Also in July, the European Space Agency (ESA) announced a competition to promote European space tourism business plans. Under the competition, named "Feasibility of European Privately-Funded Vehicles for Commercial Human Space Flight," ESA will award up to three companies with 150,000 euros (about \$190,000) to further refine their space tourism enterprises, and will make technical expertise available to those companies. The entry window closed on September 22. Winners are expected to be announced in the fourth quarter of 2006.

Building on the Space Shuttle's return to flight in the summer of 2005, the third quarter of 2006 saw two successful Shuttle missions in relatively quick succession. On July 4, Shuttle Discovery lifted off from the Kennedy Space Center (KSC) carrying supplies, equipment, and new International Space Station (ISS) crewmember Thomas Reiter to the ISS as part of the STS 121 mission. On September 9, Shuttle Atlantis carried solar cells, batteries, and a port-side truss segment to the ISS as part of the STS 115 mission.

On August 5, the Proton Breeze M booster, marketed by International Launch Services (ILS), returned to flight following its failed launch of Arabsat 4A in March 2006. The vehicle successfully deployed Eutelsat's Hot Bird 8 satellite.

In August, Turkey announced plans to establish an active space agency by 2010, with plans to steadily increase funding through 2016. Turkey also plans to begin the training of six astronauts in 2010 with help from NASA.

On August 18, NASA selected two companies from six finalists to provide commercial delivery services to the ISS under the agency's Commercial Orbital Transportation Services (COTS) initiative. The two companies are Rocketplane Kistler (RpK), whose K-1 launch vehicle will now be partially funded under the COTS program with an investment of \$207 million, and Space Exploration Technologies (SpaceX), which will receive \$278 million in NASA seed money to fund the development and demonstration flight of its Falcon 9 vehicle featuring the Dragon supply capsule.

In September, Bigelow Aerospace signed an agreement with Lockheed Martin to study the use of Lockheed's Atlas 5 vehicle. Bigelow is considering using the vehicle to launch human missions to Bigelow's proposed orbital inflatable habitat, the Sundancer, as early as 2009 or 2010. Sundancer would provide 180 cubic meters (590 cubic feet) of habitable volume.

On September 18, a Soyuz rocket launched carrying two replacement ISS crew members along with the fourth—and first female—space tourist, Anousheh Ansari. Ansari went in place of would-be Japanese space tourist Daisuke Enomoto, who was not allowed by Russian doctors to fly after failing a medical exam on August 21. According to press reports, Enomoto may yet fly on a subsequent flight. Meanwhile, the Soyuz mission was successful, and Ansari and her fellow crewmembers safely returned to Earth on September 29.

On September 23, the Japanese Aerospace Exploration Agency (JAXA) launched its final M 5 vehicle, which successfully placed the Hinode (also called Solar B) probe and two microsatellites in a sun-synchronous orbit. The M 5 is slated to be replaced by a less expensive but more versatile vehicle whose design is expected to fuse elements of both the M 5 rocket and its still-operational counterpart, the H 2A booster. JAXA plans to conduct the maiden flight of the new vehicle in 2010.

## Vehicle Use

(July 2006 – March 2007)



**Figures 1-3** show the total number of orbital and suborbital launches (commercial and government) of each launch vehicle and the resulting market share that occurred in the third quarter of 2006, as well as projecting this information for the fourth quarter of 2006 and first quarter of 2007. The launches are grouped by the country in which the primary vehicle manufacturer is based. Exceptions to this grouping are launches performed by Sea Launch, which are designated as multinational.

**Note:** Percentages for these and subsequent figures may not add up to 100 percent due to rounding of individual values.

## **Commercial Launch Events by Country**

(July 2006 - March 2007)



**Figures 4-6** show all *commercial* orbital and suborbital launch events that occurred in the third quarter of 2006 and that are projected for the fourth quarter of 2006 and first quarter of 2007.

## **Commercial vs. Non-commercial Launch Events**

(July 2006 - March 2007)



**Figures 7-9** show commercial vs. non-commercial orbital and suborbital launch events that occurred in the third guarter of 2006 and that are projected for the fourth guarter of 2006 and first guarter of 2007.

## **Orbital vs. Suborbital Launch Events**

(July 2006 – March 2007)



Figures 10-12 show orbital vs. suborbital launch events that occurred in the third quarter of 2006 and that are projected for the fourth quarter of 2006 and first quarter of 2007.

## Launch Successes vs. Failures

(July 2006 - September 2006)



**Figure 13** shows orbital and suborbital launch successes vs. failures for the period from July 2006 to September 2006. Partially-successful orbital launch events are those where the launch vehicle fails to deploy its payload to the appropriate orbit, but the payload is able to reach a useable orbit via its own propulsion systems. Cases in which the payload is unable to reach a useable orbit or would use all of its fuel to do so are considered failures.

# Payload Use (Orbital Launches Only)

(September 2006 – March 2007)



**Figures 14-16** show total payload use (commercial and government), actual for the third quarter of 2006 and projected for the fourth quarter of 2006 and first quarter of 2007. The total number of payloads launched may not equal the total number of launches due to multi-manifesting, i.e., the launching of more than one payload by a single launch vehicle.

## Payload Mass Class (Orbital Launches Only)



**Figures 17-19** show total payloads by mass class (commercial and government), actual for the third quarter of 2006 and projected for the fourth quarter of 2006 and first quarter of 2007. The total number of payloads launched may not equal the total number of launches due to multi-manifesting, i.e., the launching of more than one payload by a single launch vehicle. Payload mass classes are defined as Micro: 0 to 91 kilograms (0 to 200 lbs.); Small: 92 to 907 kilograms (201 to 2,000 lbs.); Medium: 908 to 2,268 kilograms (2,001 to 5,000 lbs.); Intermediate: 2,269 to 4,536 kilograms (5,001 to 10,000 lbs.); Large: 4,537 to 9,072 kilograms (10,001 to 20,000 lbs.); and Heavy: over 9,072 kilograms (20,000 lbs.).

(September 2006 – March 2007)



**Figure 20** shows commercial orbital launch events for the period of October 2005 to September 2006 by country.

**Figure 21** shows estimated commercial launch revenue for orbital launches for the period of October 2005 to September 2006 by country.

## **Commercial Launch Trends (Suborbital Launches Only)**

(October 2005 - September 2006)



**Figure 22** shows commercial suborbital launch events for the period of October 2005 to September 2006 by country.

## **Commercial Launch History**

(January 2001 – December 2005)



**Figure 23** shows commercial launch events by country for the last five full years.



**Figure 24** shows estimated commercial launch revenue by country for the last five full years.

# Waivers of Liability: Are They Enough For Permittees and Licensees?

#### Introduction

In December 2004, Congress passed the Commercial Space Launch Amendments Act (CSLAA) to provide additional statutory authority for the personal spaceflight industry in the U.S. While public participation will increase potential profits, the liability exposure for certain launch providers is greater than the liability exposure for launch providers of expendable launch vehicles.<sup>1</sup> The CSLAA addresses issues of liability with respect to this new class of individuals seeking astronaut wings not previously contemplated in the Commercial Space Launch Act.

"The CSLAA requires crew and each space flight participant to execute a reciprocal waiver of claims with the FAA...The CSLAA does not require crew and space flight participants to waive claims against each other or against a licensee or permittee."<sup>2</sup> Even though the federal government does not explicitly require it, licensees and permittees can still protect themselves by using contractual waivers. It should be noted that for waivers not required by statute to be effective, specific state statues must be considered in both construction and coverage.

#### Assumption of Risk

If a spaceflight participant is properly informed of the risks particular to space flight, then the launch provider can be protected for most acts of negligence, according to the legal doctrine of assumption of risk.<sup>3</sup> Assumption of risk occurs when a person voluntarily exposes their self or their property to a known and appreciated danger due to the negligence of another. As a defense, assumption of risk is based on the theory of consent. Consent can be either implied by a party's actions or expressly granted.<sup>4</sup> Permittees and licensees have guidance from the FAA on the information required by the federal government for informed consent (see CSLAA).

An effective way for permittees or licensees to give a space flight participant effective notice is through a liability waiver, also known as an exculpatory clause.<sup>5</sup> A waiver is a voluntary forfeiture of rights to causes of action otherwise available. If a written release or waiver is used, the sufficiency of the language will be examined to varying degrees depending on the jurisdiction to determine whether it will provide a complete bar to recovery in negligence actions. It is important to note that if a waiver is not required by statute, it could be in conflict with public policy and voided. An example of a conflict with public policy is the method a signature was acquired or improper waiver language. Both the nature of the accident and the state where the suit is litigated will determine the effectiveness of even the most well constructed waiver. Finally, it should be noted that a waiver will not protect a launch provider from liability for intentional torts,<sup>6</sup> for willful or wanton misconduct,<sup>7</sup> or for gross negligence.<sup>8</sup>

#### Waiver Construction

In general, waivers are not looked upon favorably by the courts and will be strictly construed in favor of the waiving party.<sup>9</sup> In order to effectively construct a waiver of liability, it must be conspicuous,<sup>10</sup> readable,<sup>11</sup> unmistakable,<sup>12</sup> unequivocal and clear.<sup>13</sup>

The waiver must be conspicuous in order to protect the party entering into the release from surprise and unknowingly waiving their rights.<sup>14</sup> To be conspicuous, a waiver must state the intent to release the provider from liability for future negligence.<sup>15</sup> No matter how clear the release may be, it will be unenforceable if it is found to be inconspicuous.

The waiver must also be specific in what is being covered.<sup>16</sup> It must effectively notify the space flight participant that they are releasing the permittee or licensee from claims arising from the permittee or licensee's own negligence. Further, the intention of each party must be stated with a high level of particularity for the waiver to be valid.<sup>17</sup>

The protection from liability must be stated in clear and unequivocal terms.<sup>18</sup> The space flight participant must be alerted to the nature and the significance of what is being signed.<sup>19</sup> The particular conduct of the provider, which causes the harm at issue, must be clearly and directly referenced in the waiver language.<sup>20</sup> For liability to be avoided, the negligent behavior must be clearly set out.<sup>21</sup> It must also be clear that it is the intent of the waiver to release the permittee or licensee from liability for the personal injury caused by their negligence.<sup>22</sup> Finally, the waiver language must clearly state the intent to exonerate the would-be licensee or permittee of liability.<sup>23</sup>

#### Minors

The ability for a parent to waive the rights of a child is not generally allowed.<sup>24</sup> States traditionally provide checks on parental authority to ensure the protection of a child's interest. Further, public policy favors protecting children's rights with respect to contractual obligations.

# State-Specific Limitations on Waivers

Judicial tolerance of liability waivers for recreational activities varies by jurisdiction. The most notable differences are: the treatment of minors, the language needed to uphold waivers, the separation of terms, the extent of coverage for claims, and the acts covered.

The limits on waiver effectiveness for states where personal space flight is being contemplated are listed below (states are listed in alphabetical order). This list of limits is by no means exhaustive, but is meant to merely highlight the major differences a licensee or permittee should consider in drafting spaceflight participant liability waivers.

## Alaska<sup>25</sup>

• Use of the word negligence is mandatory.

# **California**<sup>26</sup>

- For waivers to be valid they should distinguish between injuries due to negligence and those due to the inherent risks of activity.
- Case law is not clear if the word "negligence" is mandatory to validate a waiver.
- Parents may execute waivers on behalf of a minor child.

# Florida<sup>27</sup>

- Waivers release all sponsors or parties even if not named in the waiver.
- Damages of parent's loss of filial consortium is limited to the period of a child's minority.
- Law unclear on whether a parent can waive a minor's rights.

## New Mexico<sup>28</sup>

- State has a strong public policy of freedom to contract
- Word negligence does not have to be explicitly referred to, but intent to release liability must be clearly expressed.

# **Oklahoma**<sup>29</sup>

- Public policy does not prohibit waivers, but since they are not favored by law they will be construed against the relying party.
- State Supreme Court stated gross negligence cannot be waived.

# **Texas**<sup>30</sup>

- Waiver will be narrowly construed in favor of the party releasing liability.
- Strict requirement for fair notice.
- Both loss of consortium and wrongful death are derivative of the claim of the injured spouse.
- Case law is unclear on whether gross negligence can be waived.

# Virginia<sup>31</sup>

• Public policy forbids releases from liability for personal injury due to future acts of negligence "universally."

# Washington<sup>32</sup>

- Waivers will only protect the service provider from those risks contemplated or assumed by the client.
- Parental consortium is an independent cause of action.
- The Supreme Court has stated that Washington courts should use common sense in interpreting waivers.
- Gross negligence or willful and wanton misconduct cannot be covered.
- Parents cannot waiver childrens' rights, but parents can waive their right to recover for the injury to the minor.

# Wisconsin<sup>33</sup>

- Supreme Court stated that each waiver case would be decided on its merits under strict scrutiny.
- While wrongful death claims are derivative of claims by injured

parties, loss of consortium is an independent cause of action.

• Waiver signed by the parent on behalf of a minor is enforceable.

#### Additional Recommendations

While the CSLAA does not explicitly preclude licensee or permittee liability to space flight participants, it does leave open the possibility for state specific regulations to provide such protection. State specific statues designed to limit provider liability in industries that provide entertainment facilities and services for the public are quite effective.<sup>34</sup> It should be noted though that while a state statue can provide liability protection, it is not a perfect solution. Unanticipated scenarios can leave operators exposed to liability. For example, in Derricotte v. United Skates of America<sup>35</sup> the court found that The Roller Skating Rink Safety and Fair Liability Act did not contemplate the fall of a person skating while under the direction and control of a rink employee during a skating lesson. This scenario was thus not within the Act's purview.

Although the CSLAA does not protect launch providers explicitly from space flight participants' claims of liability, the industry is not defenseless. Properly constructed waivers are now used successfully by other recreational activity industries and can also be used by the personal space flight industry. Further, the opportunity to lobby for state legislative protection is still available. Considering the strong public support enjoyed by the commercial space industry, creating a system of waivers seems to be quite an achievable task.

#### Endnotes

<sup>1</sup> In the current launch liability system the U.S. government provides additional indemnification for commercial payload launch providers above indemnification requirements.

<sup>2</sup> Human Space Flight Requirements for Crew and Space Flight Participants, 70 Fed Reg. 248 2.A.11 (proposed Dec. 29, 1995).

<sup>3</sup> Allan v Snow Summit, Inc. (1996, 4th Dist) 51 Cal App 4th 1358, 59 Cal Rptr 2d 813, 97 CDOS 13, 97 Daily Journal DAR 9.

<sup>4</sup> 65 C.J.S. Negligence § 360 (2006).

<sup>5</sup> Note: The liability waiver by itself does not satisfy the extensive notice requirements of proposed 460.45.

<sup>6</sup> A tort committed by someone acting with general or specific intent. Examples include battery, false imprisonment, and trespass to land.

Black's Law Dictionary (8<sup>th</sup> ed. 2004).

<sup>7</sup> An intentional act performed with the knowledge that it is likely to result in serious injury or with a wanton and reckless disregard of its probable consequences.

Black's Law Dictionary (8th ed. 2004).

<sup>8</sup> Gross negligence is defined as "A conscious, voluntary act or omission in reckless disregard of a legal duty and of the consequences to another party, who may typically recover exemplary damages."

Black's Law Dictionary (8<sup>th</sup> ed. 2004).

<sup>9</sup> Pennsylvania R. Co. v. Gulf Oil Corp., 223 A.2d 79 (Del. Super. Ct. 1966)

<sup>10</sup> Purcell Tire & Rubber Co., Inc. v. Executive Beechcraft, Inc., 59 S.W.3d 505 (Mo. 2001); American Airlines Employees Federal Credit Union v. Martin, 29 S.W.3d 86, 42 U.C.C. Rep. Serv. 2d 359 (Tex. 2000).

The purpose of the requirement that the release be conspicuous in order to be enforceable is to protect the party entering into the release from surprise and an unknowing waiver of his or her rights. *Littlefield v. Schaefer*, 955 S.W.2d 272, 33 U.C.C. Rep. Serv. 2d 990 (Tex. 1997).

A clear preinjury release is not enforceable if it is inconspicuous. *Vodopest v. MacGregor*, 128 Wash. 2d 840, 913 P.2d 779 (1996).

<sup>11</sup> Littlefield v. Schaefer, 955 S.W.2d 272, 33 U.C.C. Rep. Serv. 2d 990 (Tex. 1997)

<sup>12</sup> Purcell Tire & Rubber Co., Inc. v. Executive Beechcraft, Inc., 59 S.W.3d 505 (Mo. 2001).

<sup>13</sup> College of Notre Dame of Maryland, Inc. v. Morabito Consultants, Inc., 132 Md. App. 158, 752 A.2d 265 (2000).

Exculpatory clauses must be clear if exemption from liability is to be enforced. *Vodopest v. MacGregor*, 128 Wash. 2d 840, 913 P.2d 779 (1996).

<sup>14</sup> Littlefield v. Schaefer, 955 S.W.2d 272, 33 U.C.C. Rep. Serv. 2d 990 (Tex. 1997).

<sup>15</sup> Moore v. Hartley Motors, Inc., 36 P.3d 628 (Alaska 2001).

Parties seeking to exempt themselves from tort liability must clearly and unequivocally express an intent to limit tort liability within the contract. *Bishop v. GenTec Inc.*, 2002 UT 36, 48 P.3d 218 (Utah 2002).

<sup>16</sup> Seigneur v. National Fitness Institute, Inc., 132 Md. App. 271, 752 A.2d 631 (2000); Allen v. Dover Co-Recreational Softball League, 148 N.H. 407, 807 A.2d 1274 (2002).

<sup>17</sup> Valhal Corp. v. Sullivan Associates, Inc., 44 F.3d 195 (3d Cir. 1995) (applying Pennsylvania law).

<sup>18</sup> Bishop v. GenTec Inc., 2002 UT 36, 48 P.3d 218 (Utah 2002).

<sup>19</sup> Skiing Enterprises, Inc., 206 Wis. 2d 76, 557 N.W.2d 60 (1996).

<sup>20</sup> Empire Lumber Co. v. Thermal-Dynamic Towers, Inc., 132 Idaho 295, 971 P.2d 1119 (1998).

<sup>21</sup> Firstbank of Arkansas v. Keeling, 312 Ark. 441, 850 S.W.2d 310 (1993).

<sup>22</sup> Seigneur v. National Fitness Institute, Inc., 132 Md. App. 271, 752 A.2d 631 (2000); Allen v.
 Dover Co-Recreational Softball League, 148 N.H. 407, 807 A.2d 1274 (2002).

<sup>23</sup> Schmidt v. U.S., 1996 OK 29, 912 P.2d 871 (Okla. 1996).

The parties are bound by clear and unambiguous language evidencing an intent to extinguish liability. *Kondrad ex rel. McPhail v. Bismarck Park Dist.*, 2003 ND 4, 655 N.W.2d 411 (N.D. 2003).

<sup>24</sup> Dixon v. U.S., 197 F. Supp. 798 (W.D. S.C. 1961).

<sup>25</sup> Wallis v. Princess Cruises, Inc., 306 F.3d 827, 2002 A.M.C.

<sup>26</sup> Vine v. Bear Valley Ski Co., 13 Cal.Rptr.3d 370; Sweat v. Big Time Auto Racing, Inc., 12 Cal.Rptr.3d 678; Benedek v. PLC Santa Monica, LLC, 129 Cal.Rptr.2d 197; Allan v. Snow Summit, Inc., 59 Cal.Rptr.2d 813; Allabach v. Santa Clara County Fair Assn., 54 Cal.Rptr.2d 330; Guido v. Koopman, 2 Cal.Rptr.2d 437;

<sup>27</sup> Shaw v. Premier Health and Fitness Center, Inc., 31 Fla. L. Weekly D2390

Fla.App.1.Dist.(2006); *Cain v. Banka*, 31 Fla. L. Weekly D1780 Fla.App.5.Dist.(2006); *Raveson v. Walt Disney World Co.*, 793 So.2d 1171 Fla.App.5.Dist.(2001); *Lantz v. Iron Horse Saloon, Inc.*, 717 So.2d 590 Fla.App.5.Dist.(1998); *Dilallo By and Through Dilallo v. Riding Safely, Inc.*, 687 So.2d 353 Fla.App.4.Dist.(1997); *Torres v. Offshore Professional Tour, Inc.*, 629 So.2d 192 Fla.App.3.Dist.(1993); *Banfield v. Louis*, 589 So.2d 441 Fla.App.4.Dist.(1991)

<sup>28</sup> Berlangieri v. Running Elk Corp., 48 P.3d 70

<sup>29</sup> Martin v. A.C.G., Inc., 965 P.2d 995; Manning v. Brannon, 956 P.2d 156

<sup>30</sup> Littlefield v. Schaefer, 955 S.W.2d 858; Smith v. Golden Triangle Raceway, 708 S.W.2d 574; Corpus Christi Speedway v. Morton, 279 S.W.2d 903

<sup>31</sup> *Hiett v. Lake Barcroft Community Assoc.*, 244 Va. 191, 418 S.E.2d 894 (1992)

<sup>32</sup> Conradt v. Four Star Promotions, Inc., 728 P.2d 617; Stokes v. Bally's Pacwest, Inc., 54 P.3d 161

<sup>33</sup> Atkins v. Swimwest Family Fitness Center, 691 N.W.2d 334; Werdehoff v. General Star Indem. Co., 600 N.W.2d 214

<sup>34</sup> See Illinois Equine Activity Liability Act

<sup>35</sup> 350 N.J.Super. 227, 794 A.2d 867 (Apr 16, 2002)

# Fourth Quarter 2006 Quarterly Launch Report

Third Quarter 2006 Orbital and Suborbital Launch Events										
Date		Vehicle	Site		Payload or Mission	Operator	Use	Vehicle Price	L	М
7/4/2006		Shuttle Discovery	KSC		STS 121	NASA	Crewed	N/A	s	S
						NASA	221			9
7/10/2006		GSLV	Satish Dhawan	*	Insat 4C	ISRO	Communications	\$40M	F	F
			Space Center							
7/12/2006	V	Dnepr 1	Dombarovskiy	*	Genesis Pathfinder 1	Bigelow Aerospace	Development	\$9.5M	s	S
7/21/2006		Molniya	Plesetsk		Kosmos 2422	Russian MoD	Classified	\$35M	s	s
7/26/2006		Dnepr 1	Baikonur		BelKA	Belarus National Academy of Sciences	Remote Sensing	\$9.5M	F	F
				*	AeroCube 1	The Aerospace Corporation	Development			F
					Baumanets	Bauman Moscow State Technical University	Development			F
					HAUSat 1	Hankuk Aviation	Scientific			F
					ICEcube 1	Cornell University	Scientific			F
					ICEcube 2	Cornell University	Scientific			F
					ION	University of Illinois	Development			F
					KUTESat	Kansas University	Scientific			F
					Merope	Montana State University	Scientific			F
					Ncube	Norwegian Student Satellite Project	Scientific			F
					Polysat 1	Cal Poly Aerospace Engineering	Development			F
					Polysat 2	Cal Poly Aerospace Engineering	Development			F
					Rincon	University of Arizona at Tucson	Scientific			F
					Sacred	University of Arizona at Tucson	Scientific			F
					SEEDS	Nihon University	Scientific			F
					UniSat 4	University of Rome	Development			F
7/28/2006	J	Rockot	Plesetsk		Kompsat 2	KARI	Remote Sensing	\$13.5M	s	S
8/5/2006	1	Proton M	Baikonur	*	Hot Bird 8	Eutelsat	Communications	\$70M	S	S
8/11/2006	V	Ariane 5 ECA	Kourou	*	JCSAT 10	JSAT	Communications	\$140	s	S
0/04/0000		7	Orthogonal annuals		Syracuse 3B	DGA Kana Talaan	Communications	#7014	_	S
8/21/2006	V +	Zenit 3SL	Odyssey Launch Platform	Î	KoreaSat 5	Korea Telecom	Communications	\$70M	s	S
9/9/2006		Long March 2C	Jiuquan		Shi Jian 8	China Aerospace Corporation	Scientific	\$22.5M	s	S
9/9/2006		Shuttle Atlantis	KSC		STS 115	NASA	Crewed	N/A	s	S
9/11/2006		H 2A 202	Tanegashima		IGS 3A	Japanese Defense Agency	Classified	\$85M	s	S
9/13/2006		Long March 3A	Xichang		Zhongxing 22A	Chinese Telecommunications Broadcasting Satellite Corporation	Communications	\$50M	s	S
9/14/2006		Soyuz	Baikonur		Kosmos 2423	Russian MoD	Classified	\$40M	s	s
9/18/2006		Soyuz	Baikonur		Soyuz ISS 13S	Roscosmos	ISS	\$40M	s	S
9/23/2006		M 5	Uchinoura		Hinode	JAXA	Scientific	\$50M	s	s
					Hitsat	Hokkaido Space	Development			s
9/25/2006		Delta 2 7925-10	CCAFS		Navstar GPS 2RM-2	USAF	Navigation	\$50M	s	S

√ Denotes commercial launch, defined as a launch that is internationally competed or FAA-licensed. For multiple manifested launches, certain secondary payloads whose launches were commercially procured may also constitute a commercial launch.

 Denotes FAA-licensed launch.
 Denotes a commercial payload, defined as a spacecraft that serves a commercial function or is operated by a commercial entity. Notes: All prices are estimates, and vary for each commercial launch. Government mission prices may be higher than commercial prices. Ariane 5 payloads are usually multi-manifested, but the pairing of satellites scheduled for each launch is sometimes undisclosed for proprietary reasons until shortly before the launch date.

Fourth Quarter 2006 Projected Orbital and Suborbital Launch Events									
Date		Vehicle	Site	Γ	Payload or Mission	Operator	Use	Vehicle Price	
10/13/2006	1	Ariane 5 ECA	Kourou	*	DirecTV 9S	DirecTV	Communications	\$140M	
				*	Optus D1	Singtel/Optus	Communications		
					LDREX 2	JAXA	Development		
10/19/2006		Soyuz	Baikonur		Metop A	Eumetsat	Meteorological	\$40M	
10/23/2006		Soyuz	Baikonur		Progress ISS 23P	Roscosmos	ISS	\$40M	
10/25/2006		Delta 2 7925H-10L	CCAFS		STEREO A	NASA	Scientific	\$50M	
					STEREO B	NASA	Scientific		
10/26/2006	√ +	Zenit 3SL	Odyssey Launch Platform	*	XM 4	XM Radio	Communications	\$70M	
10/2006		Long March 3A	Taiyuan		Fengyun 2D	China Meteorological Administration	Meteorological	\$50M	
10/2006		Long March 3B	Xichang	*	Sinosat 2	CNSA	Communications	\$60M	
11/4/2006		Delta 4 Medium	VAFB		DMSP 5D-3-F17	DoD	Meteorological	\$70M	
11/9/2006	V	Proton M	Baikonur	*	BADR-4	Arabsat	Communications	\$70M	
11/14/2006		Delta 2 7925-10	CCAFS		Navstar GPS 2RM-3	USAF	Navigation	\$50M	
11/30/2006	1	Ariane 5 ECA	Kourou	*	AMC 18	SES Americom	Communications	\$140M	
				*	WildBlue 1	WildBlue Communications	Communications		
11/2006	√	Dnepr 1	Baikonur	*	TerraSAR X	Infoterra	Remote Sensing	\$9.5M	
11/2006		PSLV	Satish Dhawan Space Center		Cartosat 2	ISRO	Remote Sensing	\$20M	
					LAPAN-TUBSAT	LPAN	Development		
					SRE 1	ISRO	Development		
12/2/2006		Falcon 1	Kwajalein Island		Falcon Demosat	DARPA	Development	\$7M	
12/7/2006		Delta 2 7920	VAFB		NRO L-21	NRO	Classified	\$50M	
12/8/2006		Atlas 5 401	CCAFS		Orbital Express 1A	DARPA	Development	\$75M	
					Orbital Express 1B	DARPA	Development		
					Space Test Program Satellite 1	USAF	Development		
					FalconSat 3	USAF Academy	Development		
					MEPSI 4A	DARPA	Development		
					MEPSI 4B	DARPA	Development		
					MIDSTAR 1	Naval Postgraduate School	Development		
					NPSAT 1	Naval Postgraduate School	Development		
					CFESat	USAF	Development		
12/8/2006		Shuttle Discovery	KSC		STS 116	NASA	Crewed	N/A	
					ANDE	US Naval Academy	Development		
					MARScom	US Navy	Development		
12/11/2006		Minotaur	Wallops Flight		TacSat 2	USAF	Development	\$14.5M	
12/12/2006	J	Proton M	Baikonur	*	Measat 3	MEASAT	Communications	\$70M	
12/15/2006	*	H 2A 204	Tanegashima		FTS 8	JAXA	Communications	\$85M	
12/15/2006		Shtil	Barents Sea		Sumbandila	University of Stellenbosch	Development	\$1.5M	
12/16/2006		Zenit 2SLB	Baikonur		Kosmos TBA 2	Russian MoD	Classified	\$37.5M	
12/19/2006	J	Kosmos 3M	Plesetsk		SAR Lupe 1	German MoD	Classified	\$12M	
12/20/2006	-	Sovuz	Baikonur		Progress ISS 24P	Roscosmos	ISS	\$40M	
12/21/2006	1	Sovuz 2 1B	Baikonur		Corot	CNES	Scientific	TBA	
12/25/2006		Proton (SL-12)	Baikonur		Glonass K R4	Russian MoD	Navigation	\$72.5M	
		,			Glonass K R5	Russian MoD	Navigation		
					Glonass K R6	Russian MoD	Navigation		
12/25/2006		Shtil	Barents Sea		Kompass 2	Izmiran and Lebedev Physical	Scientific	\$1.5M	
12/2006		Ariane 5 TBA	Kourou		Skynet 5A	UK MoD	Communications	\$100M	
12/2006	J	PSLV	Satish Dhawan		AGILE	ASI	Scientific	\$20M	
10/0000		Course 2 14	Space Center	1	Keemee TDA 2	Dunning MaD	Communication	TDA	
12/2006	· · ·	Suyuz 2 1A	Piesetsk		NUSITIOS I BA 3		Communications	IBA	
12/2006	<i>v</i> +	Zenit 3SL	Odyssey Launch Platform	Ĺ	N22 8	SES NEW SKIES	Communications	\$70M	
2006		Long March 2C	Taiyuan	L	Haiyang 1B	China - TBA	Remote Sensing	\$22.5M	

√ Denotes commercial launch, defined as a launch that is internationally competed or FAA-licensed. For multiple manifested launches, certain secondary payloads whose launches were commercially procured may also constitute a commercial launch.

+ Denotes FAA-licensed launch.

\* Denotes a commercial payload, defined as a spacecraft that serves a commercial function or is operated by a commercial entity. Notes: All prices are estimates, and vary for each commercial launch. Government mission prices may be higher than commercial prices. Ariane 5 payloads are usually multi-manifested, but the pairing of satellites scheduled for each launch is sometimes undisclosed for proprietary reasons until shortly before the launch date.

# Fourth Quarter 2006 Quarterly Launch Report

Date       Vehicle       Site       Payload or Mitssion       Operator       Use       Vehicle         1/202000       Delta 2 7025       CCAFS       THEMIS 1       NASA       Scientific       550M         1/20207       Allas 5 TBA       CCAFS       THEMIS 2       NASA       Scientific       570M         1/20207       /       Allas 5 TBA       CCAFS       THEMIS 4       NASA       Scientific       570M         1/20207       /       Dergr 1       Baikonur       *       Consis Pathfinder 2       Bigdow Acrospace       Development       570M         1/20207       /       Dretor M       Baikonur       *       Techsis Pathfinder 2       Bigdow Acrospace       Development       570M         1/20207       /       Delta 2 TBAS       Statis D Thearun       *       Ank F3       Telesal Canada       Communications       570M         1/20207       /       Delta 2 TBAS       Kourou       *       Techsia 2 Canada       Communications       520M         2/20207       /       Delta 2 TBAS       Kourou       *       Statis 1       Tocsha 2       Statis 1       NAsis 1       Statis 1 <th colspan="9">First Quarter 2007 Projected Orbital and Suborbital Launch Events</th>	First Quarter 2007 Projected Orbital and Suborbital Launch Events								
Price       Price         1/202007       Delta 2 7925       CCAFS       THEMIS 1       NASA       Scientific       \$50M         1/20207       //       Attas 5 TBA       CCAFS       THEMIS 3       NASA       Scientific       \$50M         1/20207       /       Attas 5 TBA       CCAFS       THEMIS 3       NASA       Scientific       \$50M         1/20207       /       Delta 2 7025       CAFS       THEMIS 3       NASA       Scientific       \$50M         1/20207       /       Delta 2 7025       CAFS       THEMIS 3       NASA       Scientific       \$50M         1/20207       /       Delta 2 702A       Xichang       Bedou 2A (Compass CNSA       Navigation       \$50M         1/20207       /       Delta 2 70BA       Xichang       TestSAR       Israel MoD       Classified       \$20M         2/142007       /       Delta 2 70BA       KKC       STS 117       NASA       ISS       \$70M       \$20M       \$70M       \$20M       \$70M       \$70M <th>Date</th> <th></th> <th>Vehicle</th> <th>Site</th> <th>Γ</th> <th>Payload or Mission</th> <th>Operator</th> <th>Use</th> <th>Vehicle</th>	Date		Vehicle	Site	Γ	Payload or Mission	Operator	Use	Vehicle
1/202007   Della 27925   CCAFS   THEMIS 1   NASA   Scientific   South File     1/2007   /   Attas 5 TEA   CCAFS   THEMIS 2   NASA   Scientific     1/2007   /   Delta 27925   CCAFS   *   Immarsat   Scientific     1/2007   /   Delta 279251   CCAFS   *   Immarsat   Scientific     1/2007   /   Delta 77925   CCAFS   *   Immarsat   Communications     1/2007   /   Delta 77925   Scientific   Scientific   Scientific     1/2007   /   Delta 77925   Scientific   Scientific   Scientific     1/2007   /   Delta 77925   Scientific   Scientific   Scientific     2/222007   /   Delta 7792   Scientific   Scientific   Scientific     2/222007   /   Delta 780   Scientific   Scientific   Scientific     2/22007   /   Attas 5 TBA   CCAFS   NaSi A   NaSi A   Scientific     2/22007   /   Attas 5 TBA   CCAFS   NaSi A   NaSi A   Scientific     2/2007   /   Delta 718   Balkonur   Scientific   Scientific     2/2007   /									Price
1/2007       /       Attas 5 TEA       CCAFS       NSA       Scientific         1/2007       /       Attas 5 TEA       CCAFS       Immaras 4 TS       NSA       Scientific         1/2007       /       Delta 2 728-10       VAFB       Scientific       Scientific       Scientific         1/2007       /       Delta 7 782-10       VAFB       Bedou 2A (Compass       CNSA       Navgation       Scientific         1/2007       /       Delta 7 78A       Xichang       Bedou 2A (Compass       CNSA       Navgation       Scientific         1/2007       /       Poto M       Bakonur       Science       Confly I       Telesat Canada       Communications       Science         2/2007       /       Delta 7 TBA       KSC       Science	1/20/2007		Delta 2 7925	CCAFS		THEMIS 1	NASA	Scientific	\$50M
12007       /       Alus 5 TEA       CCAFS       NASA       Scientific         12007       /       Drop 7 1       VAFB       NASA       Scientific         12007       /       Drop 7 1       VAFB       'Immarsal 4 73       Immarsal 4 73       Communications       570M         12007       /       Drop 7 1       VAFB       'Sensite Pathfinder 2       Bigleick Aerospace       Development       550M         12007       /       Porton M       Baikonur       'AnkF3       Telestal Canada       Communications       570M         2/142007       /       Data 2 TBA       VAFB       Telestal Canada       Communications       570M         2/222007       /       Data 2 TBA       VAFB       Telestifick 1       Gaci pi       Romote Sensing       550M         2/22007       /       Drep 1       Baikonur       'Sensing and Space Science       Development       Sign 3/S         2/22007       /       Drep 1       Baikonur       'Instif 4B       ISRO       Communications       Sign 3/S         2/2007       /       Drep 1       Baikonur       'Instif 4B       ISRO       Communications </td <td></td> <td></td> <td></td> <td></td> <td></td> <td>THEMIS 2</td> <td>NASA</td> <td>Scientific</td> <td></td>						THEMIS 2	NASA	Scientific	
12007       /       Allas 5 TBA       CACAP S       VAFB       Stormarsat       Communications       \$700         12007       /       Depr 1       Baikonur       Scensis Pathfinder 2       Bjelow Aerospace       Development       \$50M         12007       /       Proton M       Baikonur       Scensis Pathfinder 2       Bjelow Aerospace       Development       \$50M         12007       /       Proton M       Baikonur       Scensis Pathfinder 2       Bjelow Aerospace       Chasfled       \$20M         2/142007       /       Potton M       Baikonur       Scensis Pathfinder 2       Bjelow Aerospace       Communications       \$70M         2/22007       /       Potton M       Baikonur       Scensis Tis 17       NASA       Crewed       NNA         2/22007       /       Alas 5 TBA       CAFS       NNCI 30       NNA       ISS       Scensis       \$70M         2/22007       /       Alas 5 TBA       CAFS       NNCI 30       NNA       ISS       Scentific						THEMIS 4	NASA	Scientific	
12007     /     Altas 5 TBA     CCAFS     : Immarsat 4 5     Immarsat 5     Communications     \$50M       12007     /     Drepr 1     Baikonur     Beidou 2A (Compass CNSA     Navigation     \$50M       12007     /     Porton M     Baikonur     Beidou 2A (Compass CNSA     Navigation     \$50M       12007     /     Porton M     Baikonur     Beidou 2A (Compass CNSA     Navigation     \$50M       2/142007     /     Porton M     Baikonur     Beidou 2A (Compass CNSA     Navigation     \$50M       2/142007     /     Porton M     Baikonur     TechSAR     Israel MoD     Classified     \$50M       2/2007     /     Natas 5 TBA     CCAFS     NRO LOB     NRO C     Classified     \$70M       2/2007     /     Drepr 1     Baikonur     Sisti A     NASA     Communications     \$10M       2/2007     /     Drepr 1     Baikonur     Sisti A     NASA     Communications     \$10M       2/2007     /     Drepr 1     Baikonur     Sace Chaser Chastinu     Development     Soce Mesarch Institue     Communications     \$10M     Navisatinu						THEMIS 4	NASA	Scientific	
12007       /       - Derig 7       Setting       - Software       - Consult Setting       SSSM         12007       /       Proton M       Balkonur       - Genesis Pathfinder 2       Bigliow Aerospace       Development       SSSM         12007       /       Proton M       Balkonur       - Statis Dhawen       St	1/2007	J	Atlas 5 TBA	CCAES	*	Inmarsat-4 F3	Inmarsat	Communications	\$70M
1/2007   /   Dnepr 1   Baikonur   *   Cenesis Pathfinder 2   Biglow Aerospace   Development   \$9.5M     1/2007   /   Long March 3A   Xichang   Bidou 2A (Compass   CNSA   Navigation   \$50M     1/2007   /   Proton M   Baikonur   *   Ark F3   Telesat Canada   Communications   \$70M     2/14/2007   /   +   Detta 2 TBA   KSC   Sistin Dhawing   \$20M   Cassfield   \$20M     2/22007   /   +   Detta 2 TBA   KSC   Sisti 17   NASA   Crewed   N/A     2/22007   /   Jines TBA   CCAFS   NRO L-30   NRO   Classfield   \$70M     2/2007   /   Jonepr 1   Baikonur   Inset 4B   ISRO   Communications   \$10M     2/2007   /   Jonepr 1   Baikonur   Inset 4B   IsRo   Communications   \$10M     2/2007   /   Jonepr 1   Baikonur   Inset 4B   IsRo   Communications   \$10M     2/2007   /   Dnepr 1   Baikonur   Inset 4B   IsRo   Communications   \$10M     2/2007   Gaikawy Express   Tanegashima   Sace   Sace Resarch Institute   Communications <td>1/2007</td> <td>, +</td> <td>Delta 2 7925-10</td> <td>VAFB</td> <td>*</td> <td>Worldview 1</td> <td>DigitalGlobe</td> <td>Remote Sensing</td> <td>\$50M</td>	1/2007	, +	Delta 2 7925-10	VAFB	*	Worldview 1	DigitalGlobe	Remote Sensing	\$50M
12007       Long March 3A       Xichang       Beidou 2A (Compass CNSA       Navigation       \$50M         12007       /       Proton M       Baikonur       Satish Dhawang Space Center       Anik F3       Telesat Canada       Communications       \$70M         2/14/2007       /       - Detla 2 TAA       VAFB       Sistish Dhawang Space Center       Sole       Communications       \$70M         2/22007       /       - Detla 2 TAA       CAFS       Sistish       NASA       ISS       Sistish       NASA       ISS       Sistish       Sistish       Sistish       Sistish       NASA       ISS       Sistish       Sistish       NASA       ISS       Sistish       Sistis	1/2007	J	Dnepr 1	Baikonur	*	Genesis Pathfinder 2	Bigelow Aerospace	Development	\$9.5M
1/2007       Long March 3A       Xichang       Beldou 2A (Compass 1)       CNSA       Navigation       \$50M         1/2007       /       Proton M       Baikonur Space Center       * Ank F3       Telesat Canada       Communications       \$20M         2/14/2007       /       + Delta 2 TBA       VAFB       STS117       NASA       Crewed       N/A         2/22007       Aitas 5 TBA       CCAFS       NRO L-30       NRO       Classified       \$70M         2/2007       Aitas 5 TBA       CCAFS       NRO L-30       NRO       Classified       \$70M         2/2007       Aitas 5 TBA       CCAFS       NRO L-30       NRO L-30       Communications       \$100M         2/2007       Juney 1       Baikonur       Instat 4B       ISRC       Stational Authority for Remote       Reneidorment       ArtoC-10       Communications       \$100M         2/2007       Juney 1       Drepr 1       Baikonur       Stational Authority for Remote       Reneidorment       ArtoS 2       CNSS       Development       ArtoS 2       CNSS       Development       ArtoS 2       Communications       Statis 1       University of Florida       Development									
1/2007   /   Proton M   Baikonur   *   Ank F3   Telesat Canada   Communications   \$70M     2/14/2007   /   +   Delta 2 TBA   KSC   Status Dhawan   TechSAR   Israel MoD   Classified   \$20M     2/22007   Altas 5 TBA   KSC   STS 117   NASA   Crewed   N/A     2/22007   Altas 5 TBA   CCAFS   NRO L-30   NRO   Classified   \$50M     2/2007   J   Dnepr 1   Baikonur   *   Instat 4B   ISR 0   Communications   \$10M     2/2007   J   Dnepr 1   Baikonur   *   Instat 4B   ISR 0   Communications   \$10M     2/2007   J   Dnepr 1   Baikonur   *   Ark 1   Chrests   Development     Ark 3   CNES   Development   Ark 3   CNES   Development     Ark 3   CNES   Development   Ark 3   Communications   Solentific     Carx 2   University of Torinda   Development   Ark 3   Communications     Ark 3   Space Research institute   Communications   SaudiComsat 3   Space Research institute   Communications     2/2007   Galaxy Express   Tanegashima   Baikonur   * Exp	1/2007		Long March 3A	Xichang		Beidou 2A (Compass 1)	CNSA	Navigation	\$50M
12020       PSLV       Satish Drawan Space Centre Space Centre (Communications Space Centre Space Centre (Space	1/2007	J	Proton M	Baikonur	*	Anik F3	Telesat Canada	Communications	\$70M
2/14/2007     / A Della 2 TBA     VAFB     * GeoEye 1     GeoEye 1     GeoEye 1     Renote Sensing 1     \$50M       2/22/2007     A tales 5 TBA     KSC     STS 117     NASA     NASA     ISS       2/2007     A tales 5 TBA     CCAFS     NRO     Classified     \$75M       2/2007     A tales 5 TBA     KSC     NRO     Classified     \$75M       2/2007     J     Dnepr 1     Baikonur     * Insat 4B     ISR     NRO     Classified     \$75M       2/2007     J     Dnepr 1     Baikonur     * Insat 4B     ISR     NRO     Classified     \$75M       AKS 1     AutMSAt1     University of Tiorato     Development     AKS 1     AutMSAt1     Development     AutMSAt1     Development     KaySat1     SaudiComsat 3     Space Research Institute     Communications     SaudiComsat 4     Space Research Institute     Communications     SaudiComsat 5     Space Research Institute     Communications     SaudiComsat 5     Space Research Institute     Communications     Staudicat 3     Space Research Institute     Communications     Staudicat 3     Space Research Institute     Communications     Staudicat 3     Space Re	1/2007		PSLV	Satish Dhawan Space Center		TechSAR	Israeli MoD	Classified	\$20M
2222007       Shuttle Atlantis       KSC       STS 117       NASA       Crewed       N/A         222007       Atlas 5 TBA       CCAFS       NRO L-30       NRO       Classified       S75M         22007       Jonepr 1       Baikonur       Inst 44       ISRO       Cornunications       \$100M         22007       Jonepr 1       Baikonur       Finat 44       ISRO       Cornunications       \$100M         22007       Jonepr 1       Baikonur       Nakos 11       University of Fordia       Development         AKS 1       CNES       Development       AkS 2       CNES       Development         ALMASat1       University of Fordia       Development       Statification       Statification         KiwSat       Statiford University of Fordia       Development       Statiford University of Communications       Statiford University of Communications         StaudiConsat 5       Space Research Institute       Communications       StaudiConsat 3       Space Research Institute       Communications         22007       Gataxy Express       Tanagashima       Baikonur       StaudiConsat 3       Space Research Institute       Communications       SoudiConsat 3       Space Res	2/14/2007	/ +	Delta 2 TBA	VAFB	*	GeoEye 1	GeoEye	Remote Sensing	\$50M
22202007       Atias 5 TBA Ariane 5G       CCAFS Kourou       INSO L-30       NRO       Classified Srommunications       \$75M         22007       J       Dnepr 1       Baikonur       Finsat 4B       ISRO       Remote Sensing Sensing and Space Sciences       \$75M         22007       J       Dnepr 1       Baikonur       Acrocube 2       The Aerospace Corporation AKS 1       Development AKS 2       Development AKS 2       Development AKS 1       Development AKS 2       Development AKS 1       Development Atmocube       Development Atmocube       Development Ats 3       Development	2/22/2007		Shuttle Atlantis	KSC		STS 117	NASA	Crewed	N/A
2/22/007   Attas 5 TBA   CCAFS   NRO   Classified   \$75M     2/2007   Dnepr 1   Baikonur   Instat 4B   ISRO thronty for Remote   Remote Sensing   \$5.0M     2/2007   Dnepr 1   Baikonur   Fightsat   National Automity for Remote   Remote Sensing   \$5.0M     2/2007   Dnepr 1   Baikonur   Fightsat   The Aerospace Corporation   Development   \$5.0M     AKS 1   CNES   Development   AtMASat 1   University of Torino   Development     ALMASat 1   University of Torino   Development   Finata   Marking 1   Stational Outpressity of Torino   Development     KiwSat   StaudiComsat 3   Space Research Institute   Communications   Scientific     2/2007   Gatary Express   Tanegashima   SaudiComsat 4   Space Research Institute   Communications     3/2007   Gatary Express   Tanegashima   SaudiComsat 7   Space Research Institute   Communications     2/2007   Gatary Express   Tanegashima   Space Research Institute   Communications     2/2007   Gatary Express   Tanegashima   Space Research Institute   Communications     3/3/2007   Proton (SL-12)   Baikonur   Thuarya 3   Thuraya 3   RSCC   Comm						ISS 13A	NASA	ISS	
2/2007     Ariane 5G     Kourou     * Inst 4B     ISRO     Communications     \$100M       2/2007     Dnepr 1     Baikonur     Egybsat     National Authority for Remote Sensing     \$9.5M       Ariane 5G     Kourou     Finde Acrospace Coporation     Development     Development       Ariane 5G     Kourou     Ariane 5G     Kourou     Sensing and Space Sciences     Development       Ariane 5G     Kourou     Ariane 5G     CNES     Development     Development       Ariane 5G     Kourou     Staford University of Toroto     Development     Development       Ariane 5G     SaudiComsat 3     Space Research Institute     Communications     Scientific       SaudiComsat 5     Space Research Institute     Communications     Scientific     Communications       SaudiComsat 5     Space Research Institute     Communications     Staford     Staford     Staford       2/2007     Galaxy Express     Tanegashina     Bakonur     Staford     Space Research Institute     Communications     St2M       2/2007     Forton (SL-12)     Baikonur     * Express Ad33     Resocces     Scientific     St2M       2/2007	2/28/2007		Atlas 5 TBA	CCAFS		NRO L-30	NRO	Classified	\$75M
2/2007   /   Dnepr 1   Balkonur   Egyptsat   National Authority for Remote Sciences   Remote Sensing   \$3.5M     AeroCube 2   The Aerospace Corporation   Development   AKS 1   CNES   Development     AKS 1   CNES   Development   AtmoCube   University of Tronto   Development     AtmoCube   University of Tronto   Development   Development   AtmoCube   Development     AtmoCube   University of Tronto   Development   Development   Development     KatS31   University of Florida   Development   Development     KatS31   Stanford University of Florida   Development   Development     KatS31   Space Research Institute   Communications   SaudComsat 4   Space Research Institute   Communications     SaudComsat 6   Space Research Institute   Communications   SaudComsat 5   Space Research Institute   Communications     2/2007   Calaxy Express   Tanegashina   SERVIS 2   JAXA   Communications   \$72.5M     2/2007   Proton (SL-12)   Baikonur   * Thuraya 3   Thuraya 3   Communications   \$73.5M     2/2007   V + Zenit 3SL   Odysey Launch   * Thuraya 3   Thuraya 3   Communications   \$74.M	2/2007		Ariane 5G	Kourou	*	Insat 4B	ISRO	Communications	\$100M
2/2007   Galaxy Express   Tanegashina   SaudiComsat 0   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashina   SaudiComsat 3   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashina   SaudiComsat 3   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashina   SaudiComsat 4   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashina   SaudiComsat 4   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashina   SaudiComsat 6   Space Research Institute   Communications     2/2007   Calaxy Express   Tanegashina   SERVIS 2   JAXA   Communications   Size     2/2007   Porton (SL-12)   Baikonur   * Express M33   RSCC   Communications   \$72.5M     2/2007   Y   + Zenit 3SL   Odysey Lunch   * Thuraya 3   Thuraya Satellite Company   Communications   \$73.5M     3/15/2007   Jeta H Heavy   CAFS   DSP 23   USAF   Classified   \$50M     3/15/2007   Jeta H Heavy   CAFS   DSP 23   USAF   Classified   \$12M     3/12/2007   Zenit 2   Baikonur </td <td>2/2007</td> <td>V</td> <td>Dnepr 1</td> <td>Baikonur</td> <td></td> <td>Egyptsat</td> <td>National Authority for Remote Sensing and Space Sciences</td> <td>Remote Sensing</td> <td>\$9.5M</td>	2/2007	V	Dnepr 1	Baikonur		Egyptsat	National Authority for Remote Sensing and Space Sciences	Remote Sensing	\$9.5M
AKS 1   CNES   Development     AKS 2   CNES   Development     ALMASat 1   University of Bologna   Development     ALMASat 1   University of Treiste   Scientific     CanX-2   University of Toronto   Development     KatySat   AMSAT   Communications     KwiSat   AMSAT   Communications     SaudiComsat 3   Space Research Institute   Communications     SaudiComsat 4   Space Research Institute   Communications     SaudiComsat 5   Space Research Institute   Communications     SaudiComsat 7   Space Research Institute   Communications     SaudiComsat 8   Space Research Institute   Communications     SaudiComsat 9   Space Research Institute   Communications     SaudiComsat 9   Space Research Institute   Communications     SaudiComsat 9   Space Research Institute   Communications     SaudiComsat 4   Vietnamsat   Vietnamsat   Vietnamsat     2/2007   Proton (SL-12)   Baikonur   * Exprese AM33   Thuraya Satellite Co						AeroCube 2	The Aerospace Corporation	Development	
AKS 2   CNLS   Development     ALMSX1 1   University of Bologna   Development     ALMSX1 1   University of Treste   Scientific     Canx.2   University of Toroto   Development     Funsat   University of Toroto   Development     Funsat   University of Toroto   Development     KatySat 1   Stanford University   Development     KatySat 1   Stanford University   Communications     SaudiComsat 4   Space Research Institute   Communications     SaudiComsat 5   Space Research Institute   Communications     SaudiComsat 6   Space Research Institute   Communications     SaudiComsat 7   Space Research Institute   Communications     SaudiComsat 7   Space Research Institute   Communications     SaudiComsat 7   Space Research Institute   Scientific     2/2007   Proton (SL-12)   Baikonur   RakioAstron   Russian Academy of Sciences   Si24     2/2007   Proton (SL-12)   Baikonur   RakioAstron   Russian Academy of Sciences   Si26     2/2007   Proton (SL-12)   Baikonur   RakioAstron   Russian Academy of Sciences   Si26     3/15/2007   Detta 1 Heavy   CAFS   DSP 2.3   USAF   Classified   S						AKS 1	CNES	Development	
ALMASat1   University of Bologna   Development     AtmoCube   University of Treste   Scientific     CanX-2   University of Toronto   Development     KatySat1   Stanford University   Communications     SaudiComsat3   Space Research Institute   Communications     SaudiComsat5   Space Research Institute   Communications     SaudiComsat7   Space Research Institute   Communications     SaudiComsat8   Space Research Institute   Communications     SaudiComsat7   Space Research Institute   Communications     SaudiComsat8   Space Research Institute   Communications     SaudiComsat9   Balkonur   Thai MicroSatellite Company <td></td> <td></td> <td></td> <td></td> <td></td> <td>AKS 2</td> <td>CNES</td> <td>Development</td> <td></td>						AKS 2	CNES	Development	
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2/2007   Galaxy Express   Tanegashima   Space Research Institute   Communications     2/2007   Proton (SL-12)   Baikonur   Vietnamset   Vietnamset   Development     2/2007   Proton (SL-12)   Baikonur   * Express AM3   RSCC   Communications     2/2007   Proton (SL-12)   Baikonur   * Thuraya 3   Trucraya Satellite   Communications     3/15/2007   Delta 2 TBA   VAFB   AIM Explorer   NASA   Scientific     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified     3/2007   VaFB   AIM Explorer   NASA   Scientific   Stom     3/2007   Long March						AtmoCube	University of Trieste	Scientific	
2/2007   Galaxy Express   Tanegashima   SERVIS 2   JAX     2/2007   Galaxy Express   Tanegashima   SERVIS 2   JAXA     2/2007   Proton (SL-12)   Baikonur   Thal-Pah 2   Tani Mittle   Communications     2/2007   Proton (SL-12)   Baikonur   * Express AM33   RSCC   Communications     2/2007   Y et ant 2   Baikonur   * Thuraya 3   Thuraya Satellite   Communications     3/15/2007   Delta 4   VerB   Syuz ISS 14S   Roscosmos   ISS     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified     3/2007   Jegashkonur   Stachard   Radrast 2   MacDonald, Detwological Service   Stalified     3/2007   Jetask   Heavy   CCAFS   DSP 23   USAF   Classified   \$15M     3/2007   Jetask 1   DoD   Development   Stalin   Nigerian   Communications						Canx-2	University of Toronto	Development	
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2/2007   Galaxy Express   Tanegashina   Space Research Institute   Communications     2/2007   Proton (SL-12)   Baikonur   Vietnamsat   Vietnamese MPT   Remote Sensing     2/2007   Proton (SL-12)   Baikonur   Express AM33   RSCC   Communications     2/2007   Zenit 2   Baikonur   Express AM33   RSCC   Communications     2/2007   Zenit 2   Baikonur   Stype Stack   Communications   \$77.5M     3/9/2007   Soyuz   Baikonur   Soyuz IS 14S   Roscosmos   ISS   \$40M     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified   \$155M     3/29/2007   Pegasus XL   VAFB   SIB keduction   Souid Service   \$2007   Souid Service   \$2007     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Cla						Mea Huaka'l	Liniversity of Hawaii	Scientific	
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2/2007   Galaxy Express   Tanegashima   SaudiComsat 5   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashima   SERVIS 2   JAXA   Development     2/2007   Galaxy Express   Tanegashima   SERVIS 2   JAXA   Development     2/2007   Proton (SL-12)   Baikonur   SERVIS 2   JAXA   Development   TBA     2/2007   Proton (SL-12)   Baikonur   * Express AM33   RSCC   Communications   S37.5M     2/2007   Zenit 2   Baikonur   * Thuraya 3   Thuraya Satellite Company   Renote Sensing   S72.5M     2/2007   Soyuz   Baikonur   * Turaya 3   Thuraya 3   Communications   S70M     3/9/2007   Soyuz   Baikonur   * Turaya 3   Thuraya 3   Communications   S70M     3/15/2007   Delta 2 TBA   VAFB   STS Block 2010   Missile Defense Agency   Classified   S50M     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified   S12M     3/2007   VafB   AIM Explorer   NASA   Scientific   S60M     3/2007   Jeata 1   VAFB   AIM Explorer   NASA   Scientific   S15M     3/2007						SaudiComsat 4	Space Research Institute	Communications	
2/2007   Galaxy Express   Tanegashima   SaudiComsat 6   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashima   Space Research Institute   Scientfic     2/2007   Galaxy Express   Tanegashima   SERVIS 2   JAXA   Development     2/2007   Kosmos 3M   Baikonur   Vietnamese MPT   Remote Sensing   S12M     2/2007   Proton (SL-12)   Baikonur   Vietnamese MPT   Remote Sensing   S72.5M     2/2007   Zenit 2   Baikonur   * Thuraya 3   Thuraya Satellite   Communications   \$72.5M     3/9/2007   Soyuz   Baikonur   Soyuz ISS 14S   Communications   \$70M     3/15/2007   Detta 2 TBA   VAFB   STSS Block 2010   Missile Defense Agency   Classified   \$155M     3/15/2007   Pegasus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   /   Soyuz   Baikonur   Communications   \$21M   \$21M   \$31SB Ibock 2010   Missile Defense Agency   Classified   \$15M     3/15/2007   Detta 4 Heavy   CCAFS   DSP 23   USAF   Classified   \$16M     3/2007   /   Kosmos 3M   Plestsk   SAR Lupe 3   German MoD <td></td> <td></td> <td></td> <td></td> <td></td> <td>SaudiComsat 5</td> <td>Space Research Institute</td> <td>Communications</td> <td></td>						SaudiComsat 5	Space Research Institute	Communications	
2/2007   Galaxy Express   Tanegashima   SaudiComsat 7   Space Research Institute   Communications     2/2007   Galaxy Express   Tanegashima   Baikonur   Space Research Institute   Scientific     2/2007   Proton (SL-12)   Baikonur   SERVIS 2   JAXA   Development   Development     2/2007   Proton (SL-12)   Baikonur   Baikonur   * Express AM33   RSCC   Communications   \$72.5M     2/2007   / + Zenit 3SL   Odysey Launch   * Thuraya 3   Thuraya Satellite   Communications   \$72.5M     3/15/2007   Soyuz   Baikonur   STSS Block 2010   Missile Defense Agency   Classified   \$50M     3/15/2007   Delta 4 Heavy   CAFS   DSP 23   USAF   Classified   \$15M     3/2007   Forgaus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   Jong March 3B   Xichang   Nigerian   Communications   \$3cientific   \$15M     3/2007   Youg March 3B   Xichang   Satellite-1   Radrostron   Cassified   \$15M     3/2007   Youg March 3B   Xichang   Nigerian   China Aerospace Corporation   Communications   \$60M     3/2007   Youg March 3B   Xichang						SaudiComsat 6	Space Research Institute	Communications	
2/2007Galaxy Express (Kosmos 3M)Tanegashima BaikonurSaudisat 3 UCISat 1 UCISat 1 URINALPANASpace Research Institute University of California Irvine Development Thai MicroSalellite Company Remote Sensing Remote Sensing ScientificScientific Development Development TBA St20072/2007Proton (SL-12) Zenit 2BaikonurBaikonurScientific St2104Thai MicroSalellite Company Remote Sensing RadioAstronCommunications Scientific\$72.5M \$37.5M2/2007/+Zenit 3SLOdyssey Launch Platform*Thuraya 3 St315S Block 2010 Risk ReductionThuraya Satellite Communications Company CommunicationsCommunications \$50 \$50M\$70M3/15/2007Delta 4 Heavy Long March 3BCCAFSDSP 23 AlM ExplorerUSAFClassified St36 German MoD\$16M3/2007VKosmos 3M Resex XLVAFBAIM Explorer Nigerian CommunicationsScientific St60M\$16M3/2007VSoyuzBaikonurRadarsat 2 AssociatesGerman MoDClassified Associates\$16M3/2007VSoyuzBaikonurRadarsat 2 AssociatesMacDonald, Dettwiler, and AssociatesRemote Sensing \$31M\$40M3/2007VSoyuzBaikonurRedsrat 2 AssociatesCelestis 5 Celestis 6Celestis 6Communications \$60M3/2007VSoyuzBaikonurRedsrat 2 AssociatesMacDonald, Dettwiler, and AssociatesRemote Sensing \$40M10/2007<						SaudiComsat 7	Space Research Institute	Communications	
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2/2007     /     +     Zenit 3SL     Odyssey Launch Platform     *     Thuraya 3     Thuraya Satellite Communications Company     Communications     \$70M       3/9/2007     Soyuz     Baikonur     Soyuz ISS 14S     Roscosmos     ISS     \$40M       3/15/2007     Delta 2 TBA     VAFB     STSS Block 2010     Missile Defense Agency     Classified     \$50M       3/15/2007     Delta 4 Heavy     CCAFS     DSP 23     USAF     Classified     \$15M       3/29/2007     Pegasus XL     VAFB     AIM Explorer     NASA     Scientific     \$16M       3/29/2007     V     Kosmos 3M     Plesetsk     SAR Lupe 3     German MoD     Classified     \$12M       3/2007     V     Kosmos 3M     Plesetsk     SAR Lupe 3     German MoD     Classified     \$12M       3/2007     V     Soyuz     Baikonur     Radarsat 2     MacDonald, Dettwiler, and Associates     Remote Sensing     \$40M       3/2007     Zenit 2     Baikonur     Meteor 3M N2     Russian Meteorological Service     Meteorological     \$37.5M       1Q/2007     Falcon 1     VAFB     TacSat 1     DoD     Develop	2/2007		Zenit 2	Baikonur		RadioAstron	Russian Academy of Sciences	Scientific	\$37.5M
3/9/2007   Soyuz   Baikonur   Soyuz (S 14S)   Roscosmos   ISS   \$40M     3/15/2007   Delta 2 TBA   VAFB   STSS Block 2010   Missile Defense Agency   Classified   \$50M     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified   \$15M     3/2007   Pegasus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$12M     3/2007   /   Soyuz   Baikonur   Radarsat 2   MacDonald, Dettwiler, and Associates   Remote Sensing   \$40M     3/2007   /   Soyuz   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     3/2007   /   Soyuz   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     3/2007   /   Soyuz   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M <t< td=""><td>2/2007</td><td>/ +</td><td>Zenit 3SL</td><td>Odyssey Launch Platform</td><td>*</td><td>Thuraya 3</td><td>Thuraya Satellite Communications Company</td><td>Communications</td><td>\$70M</td></t<>	2/2007	/ +	Zenit 3SL	Odyssey Launch Platform	*	Thuraya 3	Thuraya Satellite Communications Company	Communications	\$70M
3/15/2007   Delta 2 TBA   VAFB   STSS Block 2010 Risk Reduction   Missile Defense Agency   Classified   \$50M     3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified   \$155M     3/29/2007   Pegasus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$12M     3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$16M     3/2007   /   Soyuz   Baikonur   Radarsat 2   MacDonald, Dettwiler, and Associates   Remote Sensing   \$40M     3/2007   Zenit 2   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Zlyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   Y   Soyuz   Baikonur   Globalstar   Colobalstar   Communications   \$40M     1Q/2007	3/9/2007		Soyuz	Baikonur		Soyuz ISS 14S	Roscosmos	ISS	\$40M
3/15/2007   Delta 4 Heavy   CCAFS   DSP 23   USAF   Classified   \$155M     3/29007   Pegasus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$12M     3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$16M     3/2007   /   Soyuz   Baikonur   Nigerian   China Aerospace Corporation   Communications   \$60M     3/2007   /   Soyuz   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   /   + Soyuz   Baikonur   Globalstar   Globalstar   Communications   \$40M     1Q/2007   + Soyuz   Baikonur   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   /   + Soyuz </td <td>3/15/2007</td> <td></td> <td>Delta 2 TBA</td> <td>VAFB</td> <td></td> <td>STSS Block 2010 Risk Reduction</td> <td>Missile Defense Agency</td> <td>Classified</td> <td>\$50M</td>	3/15/2007		Delta 2 TBA	VAFB		STSS Block 2010 Risk Reduction	Missile Defense Agency	Classified	\$50M
3/29/2007   Pegasus XL   VAFB   AIM Explorer   NASA   Scientific   \$16M     3/2007   Kosmos 3M   Piesetsk   SAR Lupe 3   German MoD   Classified   \$12M     3/2007   Long March 3B   Xichang   Nigerian   China Aerospace Corporation   Communications   \$60M     3/2007   /   Soyuz   Baikonur   Radarsat 2   MacDonald, Dettwiler, and Associates   Remote Sensing   \$40M     3/2007   Zenit 2   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Zlyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   Soyuz   Baikonur   GloVE B   ESA   Navigation   \$40M     1Q/2007   Soyuz   Baikonur   GloVE B   ESA   Navigation   \$40M     1Q/2007   V   Soyuz   Baikonur   GloVE B   ESA   Navigation   \$40M     1Q/2007   V   Zenit 3SL   Odyssey Launch Platform	3/15/2007		Delta 4 Heavy	CCAFS		DSP 23	USAF	Classified	\$155M
3/2007   /   Kosmos 3M   Plesetsk   SAR Lupe 3   German MoD   Classified   \$12M     3/2007   Long March 3B   Xichang   Nigerian   China Aerospace Corporation   Communications   \$60M     3/2007   /   Soyuz   Baikonur   Radarsat 2   MacDonald, Dettwiler, and Associates   Remote Sensing   \$40M     3/2007   Zenit 2   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   J   Soyuz   Baikonur   Gibbalstar   Globalstar   Communications   \$40M     1Q/2007   J   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   J   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   J   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   J   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   J	3/29/2007		Pegasus XL	VAFB		AIM Explorer	NASA	Scientific	\$16M
3/2007     Long March 3B     Xichang     Nigerian Communications     China Aerospace Corporation     Communications     \$60M       3/2007     V     Soyuz     Baikonur     Radarsat 2 Associates     MacDonald, Dettwiler, and Associates     Remote Sensing \$37.5M     \$40M       1Q/2007     Zenit 2     Baikonur     Meteor 3M N2     Russian Meteorological Service     Meteorological     \$37.5M       1Q/2007     Falcon 1     VAFB     TacSat 1     DoD     Development     \$7M       1Q/2007     H 2A TBA     Tanegashima     IGS 3B     Japanese Defense Agency     Classified     \$85M       1Q/2007     Long March 4B     Taiyuan     CBERS/Ziyuan 2B     CAST     Remote Sensing     \$50M       1Q/2007     V     Soyuz     Baikonur     Globalstar     Globalstar     Communications     \$40M       1Q/2007     V     + Soyuz     Baikonur     GlOVE B     ESA     Navigation     \$40M       1Q/2007     V     + Zenit 3SL     Odyssey Launch Platform     DirecTV     Communications     \$40M       1Q/2007     V     + Zenit 3SL     Odyssey Launch Platform     DirecTV     Commu	3/2007	J	Kosmos 3M	Plesetsk		SAR Lupe 3	German MoD	Classified	\$12M
3/2007   /   Soyuz   Baikonur   Radarsat 2   MacDonald, Dettwiler, and Associates   Remote Sensing   \$40M     3/2007   Zenit 2   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   /   + Soyuz   Baikonur   Globalstar   Globalstar   Communications   \$40M     1Q/2007   /   + Soyuz   Baikonur   GloVE B   ESA   Navigation   \$40M     1Q/2007   /   + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$40M	3/2007		Long March 3B	Xichang		Nigerian Communications Satellite-1	China Aerospace Corporation	Communications	\$60M
3/2007   Zenit 2   Baikonur   Meteor 3M N2   Russian Meteorological Service   Meteorological   \$37.5M     1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   / + Soyuz   Baikonur   Globalstar   Globalstar   Communications   \$40M     1Q/2007   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   / + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$10M	3/2007	V	Soyuz	Baikonur		Radarsat 2	MacDonald, Dettwiler, and Associates	Remote Sensing	\$40M
1Q/2007   Falcon 1   VAFB   TacSat 1   DoD   Development   \$7M     1Q/2007   H 2A TBA   Tanegashima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   /   +   Soyuz   Baikonur   * Globalstar   Globalstar   Communications   \$40M     1Q/2007   /   +   Soyuz   Baikonur   GloVE B   ESA   Navigation   \$40M     1Q/2007   /   +   Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$10M	3/2007		Zenit 2	Baikonur		Meteor 3M N2	Russian Meteorological Service	Meteorological	\$37.5M
1Q/2007   H 2A TBA   Tanegashima   IGS 38   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   / + Soyuz   Baikonur   * Globalstar   Globalstar   Globalstar   Communications   \$40M     1Q/2007   / + Soyuz   Baikonur   * Globalstar   Globalstar   Communications   \$40M     1Q/2007   / + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$10M	1Q/2007		Falcon 1	VAFB	*	TacSat 1	DoD	Development	\$7M
Log 2007   I ZA I BA   Lanegastrima   IGS 3B   Japanese Defense Agency   Classified   \$85M     1Q/2007   Long March 4B   Taiyuan   CBERS/Ziyuan 2B   CAST   Remote Sensing   \$50M     1Q/2007   + Soyuz   Baikonur   * Globalstar   Globalstar   Communications   \$40M     1Q/2007   Soyuz   Baikonur   GlOVE B   ESA   Navigation   \$40M     1Q/2007   / + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$10M	10/0007			Topogoaltim				Classified	00514
LQ/2007   Long March 4B   Laiyuan   CBERS/2/yuan 2B   CAS1   Remote Sensing   \$50M     1Q/2007   / + Soyuz   Baikonur   * Globalstar   Globalstar   Clobalstar   Communications   \$40M     1Q/2007   Soyuz   Baikonur   * Globalstar   Globalstar   Communications   \$40M     1Q/2007   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   / + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$10M	10/2007			i anegashima		100 JB	Japanese Derense Agency	Classified	\$85M
1Q/2007   /   +   Soyuz   Baikonur   *   Globalstar   Globalstar   Communications   \$40M     1Q/2007   Soyuz   Baikonur   GlOVE B   ESA   Navigation   \$40M     1Q/2007   /   +   Zenit 3SL   Odyssey Launch Platform   *   DirecTV 10   DirecTV   Communications   \$100M     *   Spaceway 3   Hughes Communications   Communications    \$100M	1Q/2007		Long March 4B	Taiyuan		CBERS/Ziyuan 2B	CAST	Remote Sensing	\$50M
1Q/2007   Soyuz   Baikonur   GIOVE B   ESA   Navigation   \$40M     1Q/2007   /   + Zenit 3SL   Odyssey Launch Platform   * DirecTV 10   DirecTV   Communications   \$100M     * Spaceway 3   Hughes Communications   Communications   Communications	1Q/2007	/ +	Soyuz	Baikonur	*	Globalstar Replacement TBA 1	Globalstar	Communications	\$40M
1Q/2007 / + Zenit 3SL Odyssey Launch Platform * DirecTV 10 DirecTV Communications \$100M * Spaceway 3 Hughes Communications Communications	1Q/2007		Soyuz	Baikonur		GIOVE B	ESA	Navigation	\$40M
Platform * Spaceway 3 Hughes Communications Communications	1Q/2007	v +	Zenit 3SL	Odyssey Launch	*	DirecTV 10	DirecTV	Communications	\$100M
				Platform	*	Spaceway 3	Hughes Communications	Communications	

√ Denotes commercial launch, defined as a launch that is internationally competed or FAA-licensed. For multiple manifested launches, certain secondary payloads whose launches were commercially procured may also constitute a commercial launch.

 Denotes FAA-licensed launch.
 Denotes a commercial payload, defined as a spacecraft that serves a commercial function or is operated by a commercial entity. Notes: All prices are estimates, and vary for each commercial launch. Government mission prices may be higher than commercial prices. Ariane 5 payloads are usually multi-manifested, but the pairing of satellites scheduled for each launch is sometimes undisclosed for proprietary reasons until shortly before the launch date.