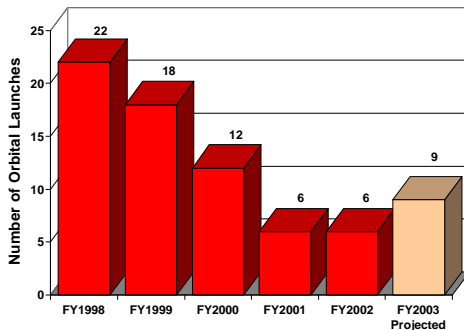


**EIGHT FAA-LICENSED LAUNCHES IN FY2002**

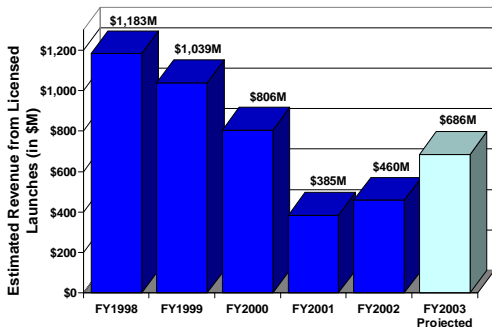
In FY2002, the Federal Aviation Administration's (FAA) Office of the Associate Administrator for Commercial Space Transportation (AST) licensed six orbital launches valued at approximately \$460 million, plus two sub-orbital launches, including:

- Two Delta 2 launches from Vandenberg Air Force Base
- One orbital flight of the multinational Sea Launch launch service provider
- The inaugural launch of the Atlas 5 and two additional Atlas vehicle launches from Cape Canaveral Air Force Station
- Two suborbital launches from Australia of the Orion-Terrier with HyShot payloads

The orbital launch count is unchanged from FY2001 (six launches), but 50 percent lower than FY2000 (12 launches), and reflects a brief leveling off of commercial launch activity. This leveling trend is expected to end in FY2003 with nine projected FAA-licensed orbital launches. These nine projected orbital commercial launches include five Sea Launch Zenit 3SL vehicles, the first Delta 4, an Atlas 3, an Atlas 5, and a Pegasus XL.



**FAA-Licensed Commercial Orbital Launch Trend**

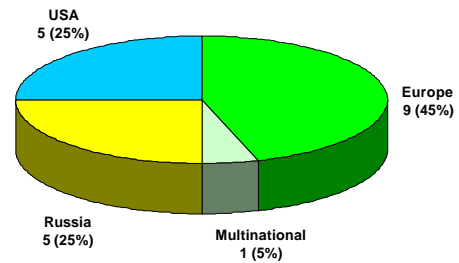


**U.S. Commercial Orbital Launch Revenue Trend**

**FIVE-YEAR ORBITAL COMMERCIAL LAUNCH TRENDS WORLDWIDE**

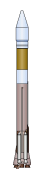




During the FY1998-FY2002 period, there was an average of 19 commercial launches to geosynchronous orbit (GSO) per year, with a low of 16 in FY2002 and a high of 23 in FY1999. There was a low of four commercial launches to non-geosynchronous orbits (NGSO) in FY2002 and a high of 22 in FY1998.

Twenty commercial launches occurred in FY2002, lower than the average of 32 launches per fiscal year during the five-year period. The U.S. (including Sea Launch) conducted an average of 13 commercial launches per year during the five-year period. Russia has averaged about eight commercial launches per fiscal year during the same period. Europe has conducted an average of ten launches per fiscal year since FY1998, having never been significantly impacted by the drop in commercial NGSO launch demand.



**Worldwide Distribution of Orbital Commercial Launches in FY2002**

**FAA-LICENSED VEHICLES LAUNCHED IN FY2002**

	United States				Sea Launch
	Atlas 1 & 2	Atlas 3	Atlas 5	Delta 2	Zenit 3SL
Vehicle					
FY2002 Total Launches	3	1	1	5	1
FY2002 Licensed Launches	1	1	1	2	1
FY2002 Reliability	3/3 (100%)	1/1 (100%)	1/1 (100%)	5/5 (100%)	1/1 (100%)
10-Year Reliability	59/60 (98.3%)	2/2 (100%)	1/1 (100%)	74/75 (98.6%)	7/8 (87.5%)
LEO Capacity kg (lb)	8,618 (18,982)	10,764 (23,709)	20,520 (45,238)	5,800 (12,820)	15,876 (34,969)
GEO Capacity kg (lb)	3,833 (8,450)	4,500 (9,920)	8,670 (19,114)	2,000 (4,550)	6,000 (13,216)



**WORLDWIDE ORBITAL COMMERCIAL LAUNCH EVENTS IN FY2002**

Date	Vehicle	Site	Payload(s)	Operator	Manufacturer	Use	Comml Price	L	M
<b>United States</b>									
10/18/2001	✓ Delta 2 7320	VAFB	* QuickBird	DigitalGlobe	Ball Aerospace and Technologies Corp.	Remote Sensing	\$45-55M	S	S
2/11/2002	✓ Delta 2 7920	VAFB	* Iridium 90	Iridium Satellite LLC	Motorola, Inc.	Communications	\$50-60M	S	S
			* Iridium 91	Iridium Satellite LLC	Motorola, Inc.	Communications		S	
			* Iridium 94	Iridium Satellite LLC	Motorola, Inc.	Communications		S	
			* Iridium 95	Iridium Satellite LLC	Motorola, Inc.	Communications		S	
			* Iridium 96	Iridium Satellite LLC	Motorola, Inc.	Communications		S	
2/21/2002	✓ Atlas 3B	CCAFS	* EchoStar 7	Echostar Communications Corporation	Space Systems/Loral	Communications	\$90-105M	S	S
8/21/2002	✓ Atlas 5 401	CCAFS	* Hot Bird 6	Eutelsat	Alcatel Espace	Communications	\$75-90M	S	S
9/18/2002	✓ Atlas 2AS	CCAFS	* Hispasat 1D	Hispasat	Alcatel Espace	Communications	\$90-105 M	S	S
<b>Europe</b>									
11/27/2001	Ariane 44LP	Kourou	* DirecTV 4S	DirecTV, Inc.	Boeing	Communications	\$90-110 M	S	S
1/24/2002	Ariane 42L	Kourou	Insat 3C	Indian Space Research Organization	Indian Space Research Organization	Communications	\$80-100 M	S	S
2/23/2002	Ariane 44L	Kourou	* Intelsat 904	Intelsat	Space Systems/Loral	Communications	\$100-125 M	S	S
3/28/2002	Ariane 44L	Kourou	* JCSAT 8	Japan Satellite Systems (JSAT)	Boeing	Communications	\$100-125 M	S	S
			* Astra 3A	SES Astrium	Boeing	Communications		S	
4/16/2002	Ariane 44L	Kourou	* NSS 7	New Skies Satellites N.V.	Lockheed Martin Corp.	Communications	\$100-125 M	S	S
6/5/2002	Ariane 44L	Kourou	* Intelsat 905	Intelsat	Space Systems/Loral	Communications	\$100-125 M	S	S
7/5/2002	Ariane 5G	Kourou	* Stellan 5	France Telecom	Alcatel Espace	Communications	\$150-180 M	S	S
			* N-Star C	NTT Mobile Communications Network, Inc.	Lockheed Martin Corp.	Communications		S	
8/28/2002	Ariane 5G	Kourou	* Atlantic Bird 1	Eutelsat	Alenia Spazio	Communications	\$150-180 M	S	S
			* MSG 1	Eumetsat	Alcatel Espace	Meteorological		S	
9/6/2002	Ariane 44L	Kourou	* Intelsat 906	Intelsat	Space Systems/Loral	Communications	\$100-125 M	S	S
<b>Russia</b>									
3/17/2002	Rockot	Plesetsk	GRACE 1	NASA/DLR	Astrium GmbH	Scientific	\$12-15M	S	S
			GRACE 2	NASA/GFZ	Astrium GmbH	Scientific		S	
3/30/2002	Proton (SL-12)	Baikonur	* Intelsat 903	Intelsat	Space Systems/Loral	Communications	\$75-95 M	S	S
5/7/2002	Proton (SL-12)	Baikonur	* DirecTV 5	DirecTV, Inc.	Space Systems/Loral	Communications	\$75-95 M	S	S
6/20/2002	Rockot	Plesetsk	* Iridium 97	Iridium Satellite LLC	Motorola, Inc.	Communications	\$12-15M	S	S
			* Iridium 98	Iridium Satellite LLC	Motorola, Inc.	Communications		S	
8/22/2002	Proton (SL-12)	Baikonur	* EchoStar 8	Echostar Communications Corporation	Space Systems/Loral	Communications	\$75-95 M	S	S
<b>Multi-national</b>									
6/15/2002	✓ Zenit 3SL	Odyssey Launch Platform	* Galaxy 3C	Pan American Satellite Corp.	Boeing	Communications	\$75-95 M	S	S

\* Denotes a commercial payload, defined as a spacecraft which serves a commercial function or is operated by a commercial entity.

✓ Denotes a commercial launch licensed by the Federal Aviation Administration's (FAA) Office of the Associate Administrator for Commercial Space Transportation (AST)

L Denotes launch outcome (S-success, F-failure, and P-partial). M denotes mission outcome (S-success, F-failure, and P-partial).