

**“Horses for Courses” paper:  
a 2008 Addendum**

**30<sup>th</sup> September, 2008**

**Derek Webber**

**Spaceport Associates,  
5909 Rolston Road, Bethesda, MD**

## 1. INTRODUCTION

The paper “Horses for Courses- Spaceport Types”, by Derek Webber, was presented at the International Space Development Conference, ISDC 2005, in Washington DC in May 2005.

The paper contained some useful tabulations of world and US spaceport data, which have been accessed since that time by numerous analysts. However, some of this data is now 3 years out of date, and requests have been received for an update of the key data tables to reflect changes that have occurred since the initial publication.

The author has chosen to issue these updates as a simple addendum rather than to re-issue the original full paper, because the arguments in that original paper remain valid, and it continues to be accessible via the home page of the web-site [www.SpaceportAssociates.com](http://www.SpaceportAssociates.com).

Therefore, this addendum contains only the updated versions of Tables 1, 2 and 4 from the original paper, retaining the numbering of the original paper, but adjusting the attributions to the present date.

## 2. MAIN SUBSTANCE OF CHANGES

Note from the headings that the tables contain data on US and non-US spaceports, and between planned and operational spaceports. Tables 1 and 2 contain both operational and planned spaceport data; Table 4 refers only to operational spaceports. All three tables reflect changes that have happened during the last 3 years.

For Table 1, which focuses on US operational and planned spaceports, the main difference is a reflection of the fact that the FAA-AST has now awarded a spaceport license to Oklahoma Spaceport, and it therefore moves its category on the table. Other changes include the removal of the former Gulf Coast Regional spaceport, which was terminated in Feb 2007, and the introduction of the Cecil Field development in Florida.

Changes to Table 2 reflect announced changes from elsewhere in the world, including several potential new spaceports for space tourism which remain in the concept phase (such as Cape Bretton, Dubai, Singapore, Lossiemouth) and a restructuring of the spaceport strategy within Russia, where Svobodny ceased operations in 2007 and Yasny has been operating Dnepr launches.

The Table 4 changes merely reflect the changes to the operational spaceports as already reported in the other two tables, including the addition of Oklahoma to the list of operational US spaceports.

### 3. NEW TABLES

The following three tables therefore reflect the changes that have taken place since 2005, and should be read alongside the text of the original “Horses for Courses” spaceport paper.

TABLE 1  
US SPACEPORTS SUMMARY STATUS (OPERATIONAL AND PLANNED)

Class	Spaceport	Location	Status
Federal	Kennedy Space Flight Center Edwards AFB Vandenberg AFB Wallops Flight Facility White Sands Missile Reagan Test Site	Cape Canaveral, Florida Mojave, California Lompoc, California Wallops Island, Virginia New Mexico Kwajelein, Marshall Islands	Operational Operational Operational airlaunch, maybe Falcon Operational Operational
Licensed non- Federal	California Spaceport Kodiak Launch Complex Florida Space Authority Mid Atlantic Regional Spaceport Mojave Civ Flt Test Oklahoma Spaceport West Texas Corn Ranch	Lompoc, California Kodiak Island, Alaska Cape Canaveral, Florida Wallops, Virginia Mojave, California Burns Flat, Oklahoma Van Horn, Texas	Co-located Vandenberg AFB also Poker Flat. Polar launches at KSFC and Cape San Blas at Wallops Flight Facility. Scaled and X-COR Rocketplane base. Suborbital. Bezos Blue Origin
Proposed non- Federal	Chugwater Spaceport South Texas Spaceport America Spaceport Alabama Spaceport Washington Cecil Field West Texas Wisconsin Spaceport	Platte County, Wyoming Willacy County, Texas Upham, New Mexico Baldwin County, Alabama Grant County, Washington Jacksonville, Florida Pecos County, Texas Sheboygan, Wisconsin	3 pads being built Near C.R.Johnson airport Virgin Galactic future site Site near Mobile STS emergency landing site. Existing Airport No infrastructure. Suborbital launch pad.

Assoc Administrator Commercial Space Transportation FAA, Jan 2008, Updated by Spaceport Associates.

TABLE 2 NON-US SPACEPORTS SUMMARY (OPERATIONAL OR PLANNED)

Country	Spaceport	Location	Status
Anguilla	Sombrero Island	18 deg N	concept only. Beal site.
Argentina	La Rioja	29 deg S	proposed
	Mar Chiquita	n/k	proposed
Australia	Woomera	31.0 deg S	former UK site(Blue Streak)
	Cape York	12 deg S	proposed
Brazil	Alcantara	2.2 deg S	operational
	Barreira do Inferno	5.5 deg S	Sonda sounding rockets
Canada	Churchill Range	57.7 deg N	Black Brant sounding rockets
	Cape Bretton	46 deg N	Nova Scotia/Planetspace proposal
China	Jiuquan	40.6 deg N	Long March
	Taiyuan	37.8 deg N	Long March
	Xichang	28.2 deg N	Long March
	Hainan Island	19 deg N	Sounding rockets/Wenchang
French Guiana	Kourou	5.2 deg N	Ariane and Soyuz pads
India	Sriharikota (SHAR)	13.7 deg N	PSLV and GSLV
	Balasore	22 deg N	n/k
Indonesia	Pameungpeuk	7 deg S	n/k
International	Odyssey Platform	Equator	Sea Launch/Zenit 3SL
Iraq	Al Anbar	34 deg N	n/k
Israel	Palmachim	33 deg N	Shavit vehicle.
Italy	n/k	40-45 deg N	Possible Rocketplane spaceport
Japan	Kagoshima	31.2 deg N	M5 LEO
	Tanegashima	30.4 deg N	H2 GEO
	Yoshinobu	33 deg N	n/k
	Osaki	33 deg N	in development
	Takesaki	37 deg N	Sounding rockets
Kazakhstan	Baikonur/ Tyuratam	45.6 deg N	Soyuz, Proton,Rockot, Zenit, Dnepr, etc
Korea	Naro	40 deg N	KSLV-1
Malaysia	Perak/Ipoa	5 deg N	n/k (maybe Bristol Spaceplanes)
Marshall Islands	Kwajalein	9 deg N	n/k
Norway	Andoya Range	69.3 deg N	Sounding Rockets
Pakistan	Suparco/Miani	25.0 deg N	Sounding rockets
Papua New Guinea	Spaceport	8 deg S	proposed
Russia	Kapustin Yar	48.4 deg N	Cosmos launches
	Yasny	51 deg N	Dnepr/Bigelow
	Nov'skovsk	54 deg N	Shtil
	Plesetsk	62.8 deg N	Soyuz, Angara
Singapore	n/k	1 deg N	Possible space tourism spaceport
South Korea	Verarodo Island	35 deg N	KSLV1 (2007).
Spain	Canaries	28 deg N	in devt for Capricornio
Spain	Catalonia	42 deg N	Possible space tourism spaceport
Sweden	Kiruna/Estrange	68 deg N	Sounding rockets/Virgin SpaceShipTwo
Taiwan	Ping Tung	22.5 deg N	n/k
United Arab Emirates	Dubai	25 deg N	Possible space tourism spaceport
United Kingdom	Lossiemouth, Scotland	58 deg N	Possible Virgin Galactic spaceport

Source: Spaceport Associates 2008

**TABLE 4 OPERATIONAL WORLD SPACEPORTS - COMPETITIVE COMPARISONS**

Country	Spaceport	Deg Lat.	Easterly Azimuths	N/S Azimuths	yrs ops	Mission Types*	Launch Vehicles	
US	KSFC	28.5 deg N	35 to 120	none	58	L,G,H	Atlas, Delta, Titan, STS	
	Edwards	35.0 deg N	n/a	n/a	61	A	Pegasus, X-Planes	
	Vandenberg	34.7 deg N	none	140 to 201	51	L,P,A	Atlas, Delta, Titan, Peg, Taur	
	Wallops	37.5 deg N	38 to 60	none	63	L,S,A	Black Brant, Pegasus, Scout	
	White Sands	32.5 deg N	none	yes (n/k)	63	S	Suborb test vehicles	
	Cal Sp'port	34.7 deg N	none	147 to 220	13	S,P	Taurus, Minotaur	
	Kodiak	57.0 deg N	none	125 to 235	10	S,P,L,M	Athena	
	Florida S.A.	28.5 deg N	35 to 120	none	51	L,G	Athena, Microstar	
	M.A.R.S.	37.5 deg N	38 to 60	none	11	S,L,A	Minotaur	
	Mojave	35.0 deg N	n/a	n/a	4	H	SpaceShipTwo, X-Cor	
Oklahoma	35.5 deg N	n/a	n/a	0	S, H, A	Rocketplane		
Australia	Woomera	31.0 deg S	none	350 to 15	62	P,S	Blue Streak, Skylark	
Brazil	Alcantara	2.2 deg S	10 to 100	10 to 100	18	S,L,G	Sonda, VLS, Cyclone 4	
Brazil	Barr do Inf	5.5 deg S	14 to 145	14 to 145	43	S	Sonda, Nike-Apache	
Canada	Churchill	57.7 deg N	none	yes (n/k)	51	S,P	Aerobee, Nike, Black Brant	
China	Jiuquan	40.6 deg N	135 to 153	135 to 153	44	L,P,H	Long March 1, 2 and CZ2F	
China	Taijuan	37.8 deg N	90 to 190	90 to 190	20	L,P	Long March 2, 4	
China	Xichang	28.2 deg N	94 to 105	n/k	30	G	Long March 2, 3	
China	Hainan Is	18.0 deg N	n/a	n/a	n/k	S	Sounding Rockets	
Fr Guiana	Kourou	5.2 deg N	350 to 93	350 to 93	40	S,N,G,H,P	Ariane, Soyuz,Vega, Cyclone	
India	Sriharikota	13.7 deg N	18-50	18-50	28	L,G,P	PSLV, GSLV	
Int'l	Odyssey	0.0 deg N	any	any	13	G, P	Zenit 3SL	
Israel	Palmachim	32.0 deg N	yes (n/k)	none	n/k	L	Shavit	
Japan	Kagoshima	31.2 deg N	31 to 100	none	46	L	M5	
Japan	Tanegashima	30.4 deg N	yes (n/k)	none	41	L,G	H2	
Japan	Takesaki	37.0 deg N	n/a	n/a	40	S	Sounding Rockets	
Kaz'stan	Baikonur	45.6 deg N	25 to 62		193	51	L,M,G,H	Cosm, Dnepr, Rock, Soy, Pro
Marsh Is	Kwajalein	8.0 deg N	yes (n/k)	n/k	n/k	G,L,A,S	Falcon, Pegasus	
Norway	Andoya	69.3 deg N	n/a	n/a	46	S	Skylark, Black Brant	
Pakistan	Suparco	25.0 deg N	none	220 to 310	48	S	n/k	
Russia	Kapustin Yar	48.4 deg N	51 to 107	none	51	S,L,P	Cosmos	
Russia	Yasny	51.0 deg N	n/k	n/k	n/k	L	DNEPR/Bigelow	
Russia	Plesetsk	62.8 deg N		90	14	42	M,L,P	Cosm, Moln, Rock, Soy, Ang
Russia	Nov'skovsk	54.0 deg N	n/k	n/k	n/k	L	Shtil	
Sweden	Kiruna	68.0 deg N	n/a	n/a	44	S	Skylark, Black Brant	
Taiwan	Ping Tung	22.5 deg N	n/k	n/k	n/k	n/k	n/k	

\* GEO-G; LEO-L; POLAR-P; MOLNIYA-M; SUBORBITAL-S; HUMAN-H; AIR-LAUNCHED -A;

Source: Spaceport Associates 2008

#### 4. CONCLUSIONS

This addendum reflects changes to data of three of the tables of the ISDC 2005 paper: “Horses for Courses – Spaceport Types” by Derek Webber. Apart from these three updated tables (Tables 1, 2 and 4) there are no other updates required to the content of the paper at this time.

Both the original 2005 paper, and this 2008 addendum, will be available for download from the home page of the web-site: [www.SpaceportAssociates.com](http://www.SpaceportAssociates.com) together with many other papers related to the space tourism business.