

### 15. Space-related patents

Patenting in the space sector is not as common as in other sectors, as commercial discretion and institutional confidentiality are often still priorities for some space systems. There are only a few hundreds patents a year. Still, the number of space-related patents has almost quadrupled in 20 years, as revealed by the applications filed under the Patent Co-operation Treaty (PCT). The space application areas (i.e. satellite navigation, earth observation, telecommunications) have also gained in importance in a decade.

When comparing patent applications for space-related technologies per country over 2001-03 and 2009-11, the United States still leads but its share has shrunk. Other countries have seen their shares of worldwide patents grow in relative terms, noticeably France, Germany, China, Japan and Italy. In terms of revealed technological advantage, eight countries demonstrate a level of specialisation in space technologies. The Russian Federation, France, Israel, Turkey, Chinese Taipei, Canada, Spain, Brazil and the United States show a relatively large amount of patenting in space activities, compared to other economic sectors.

In terms of space-related patenting on a regional scale, the highest shares can be found in a few selected regions: around 12% of worldwide space patenting occurs in California (USA), 6% in Midi-Pyrénées (FRA), 5% in Southern Kanto (JPN) and Île de France (FRA), and 4% in Guangdong (CHN). Between 2001-03 and 2009-11, California's share has noticeably shrunk, while several European and Asian regions have seen their patenting activities progress (Midi-Pyrénées, Southern Kanto, Capital Region in Korea), with strong growth in some cases (Île de France, Guangdong, Niedersachsen, Hamburg, Aquitaine, Ontario).

#### Methodological notes

Space-related patents are identified using a combination of codes from the International Patent Classification (IPC) and key word searches in the patent title. In the first figure, the downturn of USPTO patent grants after 2001 is mainly due to delays in updating patent databases and to the time-lag between the application of a patent and its granting (trends for applications filed were also included for USPTO). The "revealed technological advantage" (RTA) index is defined as a country's share in patents in a particular field of technology, divided by the country's share in all patents. The index is equal to zero when the country holds no patents in a given sector, is equal to 1 when the country's share in the sector is equal to its share in all fields (i.e. no specialisation), and grows when a positive specialisation is found. For sectoral comparisons, patents in biotechnologies and nanotechnologies are based on a selection of IPC classes. Patents in environment-related technologies are defined using combinations of IPC classes and codes Y02 of the European Classification (ECLA).

#### Sources

OECD patent databases, May 2014 and calculations based on the Worldwide Patent Statistical Database, EPO, Spring 2014. [www.oecd.org/sti/inno/oecdpatentdatabases.htm](http://www.oecd.org/sti/inno/oecdpatentdatabases.htm).

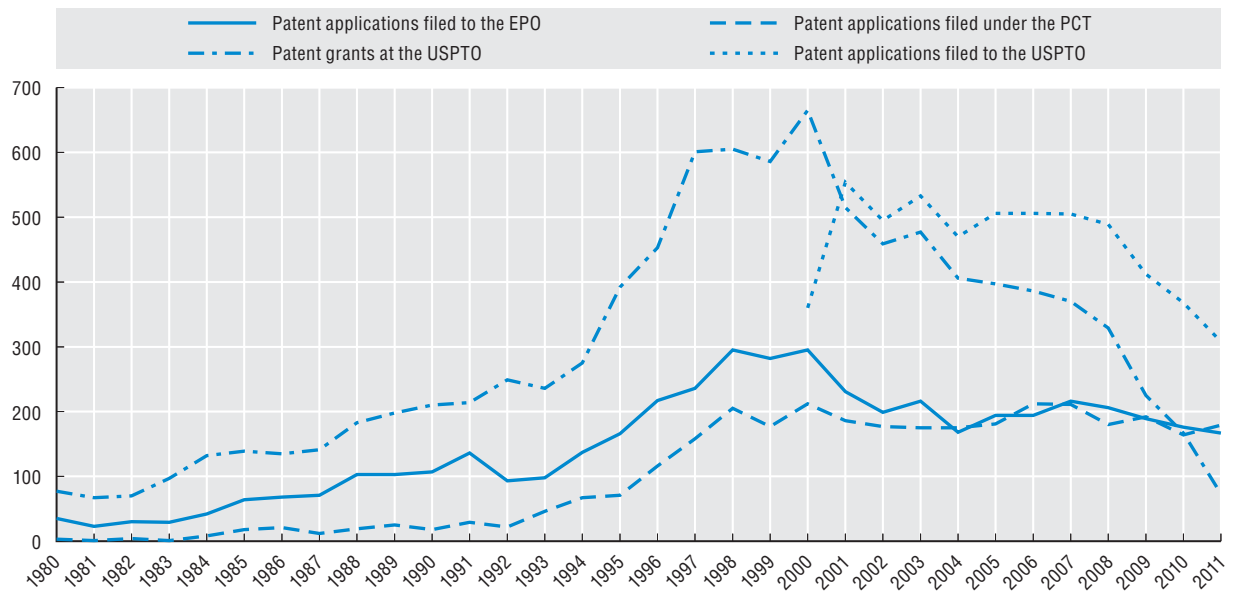
#### Note

15.2: Patents in space-related technologies can be allocated to more than one domain.

Information on data for Israel: <http://dx.doi.org/10.1787/888932315602>.

### 15.1. Evolution of space-related patents

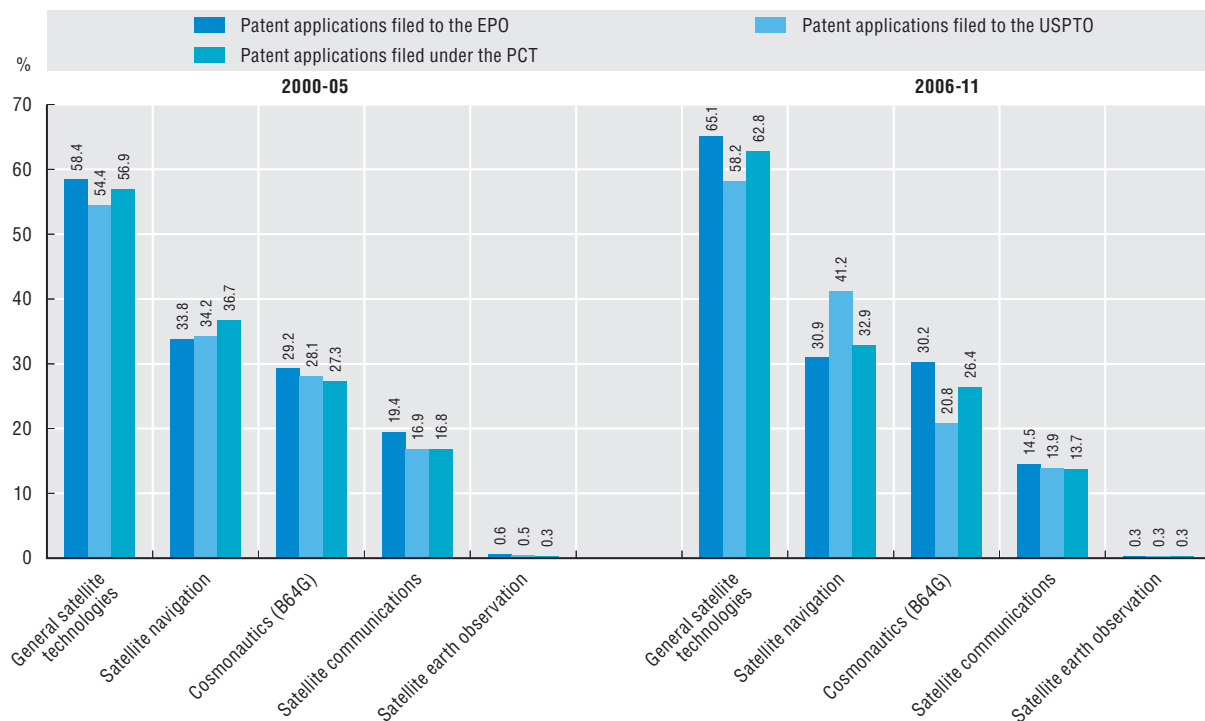
Number of patents, by patent offices and priority date, 1980-2011



StatLink <http://dx.doi.org/10.1787/888933141893>

### 15.2. Space-related patents by main domains

% of patents, by patent offices and priority date, 2000-05 and 2006-11



Source: OECD patent databases and calculations, 2014.

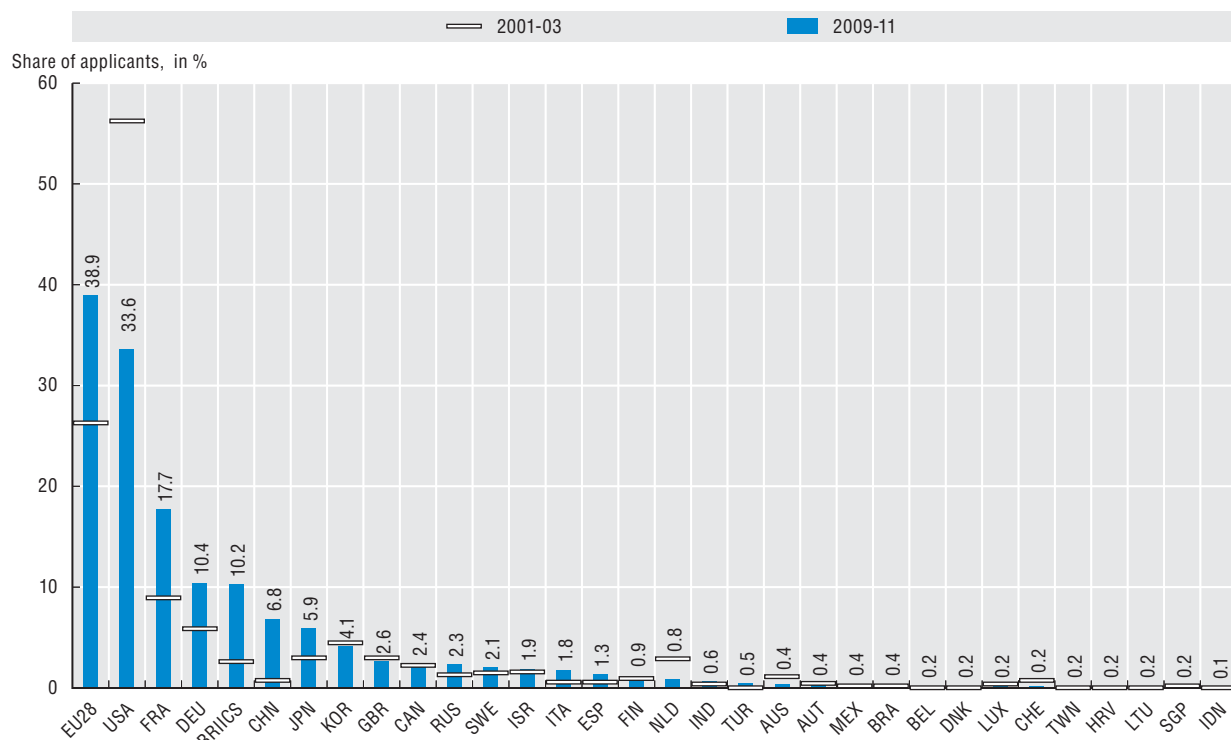
StatLink <http://dx.doi.org/10.1787/888933141912>

## II. INTENSITY: ACTIVITIES AND OUTPUTS IN THE SPACE ECONOMY

### 15. Space-related patents

#### 15.3. Patent applications for space-related technologies per economy

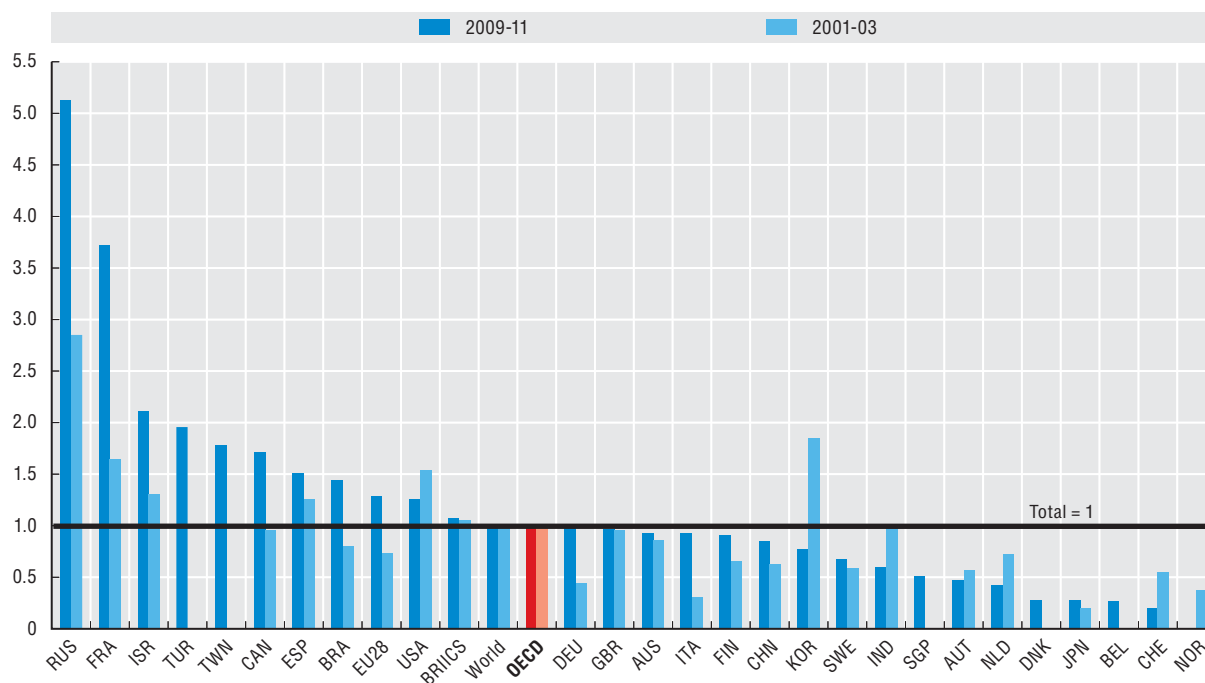
Patent applications filed under the PCT, by priority date and inventor's residence, using fractional counts



StatLink <http://dx.doi.org/10.1787/888933141931>

#### 15.4. Revealed technology advantage in space related technologies

Patent applications filed under the PCT, by priority date and inventor's residence



Source: OECD Patent Database and calculations, 2014.

StatLink <http://dx.doi.org/10.1787/888933141950>

### 15.5. Top 20 regions in space-related patents

Patent applications filed under the Patent Cooperation Treaty by inventor's region and priority date, 2001-03 and 2009-11



Source: OECD Patent Databases (REGPAT), June 2014.

StatLink <http://dx.doi.org/10.1787/888933141969>



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