

### 34. Switzerland

#### Institutional framework

Switzerland has been active in European space activities since the early 1960s. It was a founding member of the European Space Agency (ESA) and co-chairs the ESA Council at ministerial level since 2012. The country takes a wide-ranging interest in space, while specialising in specific segments. Having longstanding capacities in space science, it has been a supporter of European launcher programmes from the beginning and has developed industry capabilities in this sector. Over time Switzerland has built up capacities in exploration and exploitation of space infrastructure, where applications and services are becoming increasingly important. Switzerland is also one of 10 countries supporting the European Southern Observatory (ESO) which operates two major observatories in Chile. The Swiss Space Office (SSO) is the administrative unit responsible for planning and implementing Swiss space policy, as defined by the Federal Council. It is under the direct authority of the Federal Department of Economic Affairs, Education and Research.

The Swiss Space Implementation Plan (SSIP) within the Education, Research and Innovation Framework 2014-2023 focuses on the consolidation of current fields of excellence; promotion of merging themes and additional measures including business incubation, internationalisation and export, application push and public-private-partnerships. Each year, approximately 90% of all R&D budgeted space-related funding is allocated to ESA, which makes the latter the *de facto* space agency of Switzerland, as is the case for many of the ESA member states. The Swiss institutional R&D space budget amounted in 2013 to CHF 158 million (USD 171 million), with 95% of the budget allocated to the European Space Agency (CHF 150 million/USD 162 million). Switzerland contributed to almost all of ESA's optional programmes, with a main emphasis on launchers, earth observation, technology and telecom (which accounted respectively 20.9%, 18.5% and 15.8%). The remaining CHF 8 million (USD 8.6 million) were budgeted for national complementary activities to support national pilot projects and research and technology activities (i.e. promoting the transfer of knowledge from academia to industry, stimulating co-operation between Swiss actors). In addition to this institutional R&D space budget (CHF 158 million), Switzerland contributed CHF 8 million (USD 8.5 million) to Eumetsat in 2013, and CHF 97 million to the European Union Global

Navigation Satellite System Programmes (Galileo and Egnos), for the period 2008-2013 (about CHF 16 million per year).

#### Swiss space industry

Around 100 Swiss companies and academic institutes are engaged in space activities. The Swiss space sector has been supplying highly specialised and high-technology subsystems and components for the last 40 years, providing for example external fairings to all European-built launch vehicles (Ariane and Vega) since 1974 and to the American Atlas V launch vehicle. Other products include mechanisms for solar arrays, structures, electronics subsystems, mechanical and electrical ground system equipment, atomic clocks used in satellites and components for Mars planetary rovers and scientific instruments. The Swiss space-related companies and institutes are spread across the country, with a concentration near Zürich and in the French-speaking cantons. According to a Eurospace survey, about 800 persons were employed in space manufacturing industry in 2013 (the survey does not include all Swiss actors, in particular SMEs and institutes developing scientific instruments). More people are actually engaged in Swiss space activities in both the private sector and in research institutions. Preliminary estimates lead to several thousand employees. Net sales of the biggest space company in Switzerland (RUAG Space Division) amounted to approximately CHF 299 million (USD 322 million) in 2013, with 1 151 employees in three countries. Many Swiss institutions are conducting space-related research: the federal institutes of technology of Lausanne and Zürich, large universities (Bern, Geneva) and universities of applied science (UAS) (Lucerne), as well as various institutes, such as the World Radiation Center/Physikalisch-Meteorologisches Observatorium, the International Space Science Institute, or the Centre Suisse d'Electronique et Microtechnique.

#### Note

34.3: The Swiss institutional R&D space budget comprises ESA and the national complementary activities. The contribution to the European Union's Global Navigation Satellite System Programme has been equally distributed over the period 2008-13. Several multi-annual adjustments and other mechanisms of the ESA financial system have an effect on yearly comparisons. ESA budgets and national allocations to ESA will not necessarily add up.

#### Key facts for Switzerland

Space budget as a share of GDP in 2013: 0.03%.

Space budget per capita in 2013: USD 16.6 (PPP).

Number of regional clusters including space industry: n/a.

Share in scientific production in satellite technologies (2013): 1.67%.

Share of space-related patent applications filed under PCT (2009-11): 0.19%.

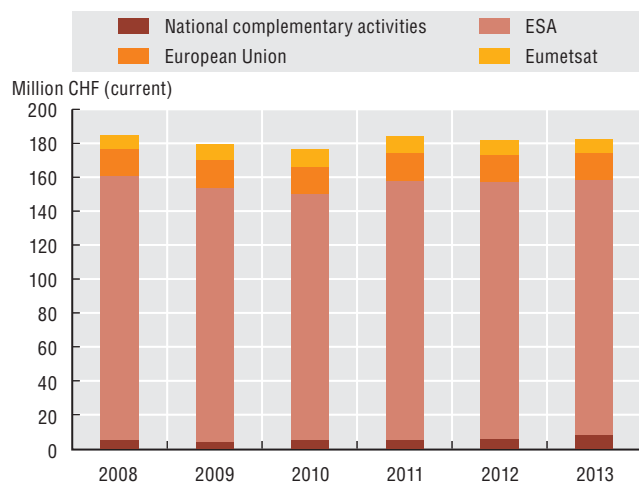
Subscribers of Direct-to-home (DTH) satellite services (2011): 253 000 (7.92% of television households).

Number of operational satellites: n/a.

Student performance in science (PISA 2012 mean score): 515 (above the OECD average).

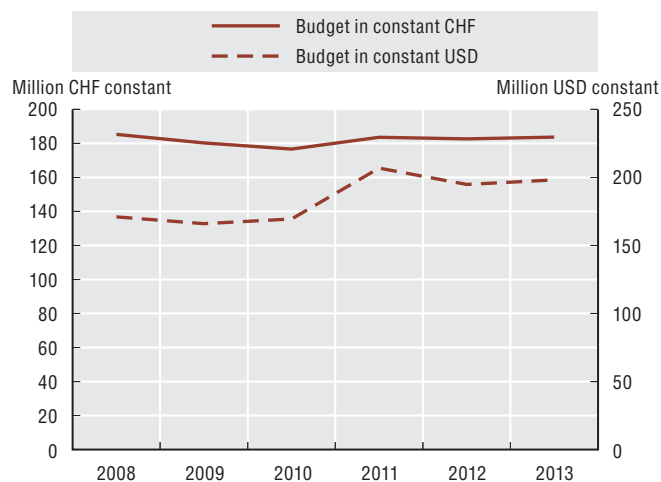
### 34.1. Switzerland's space budget

In million CHF (current), 2008-13



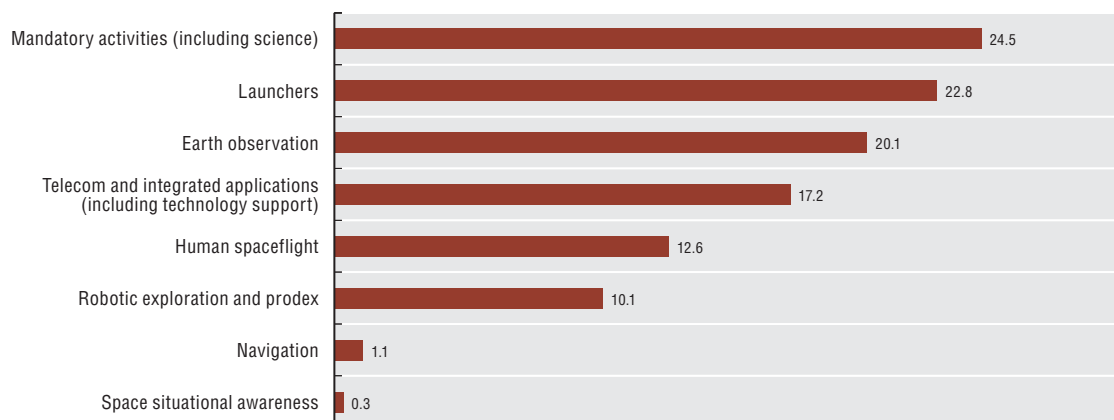
### 34.2. Switzerland's inflation-adjusted space budget

In million constant CHF and USD, 2008-13



### 34.3. Switzerland's ESA allocations by main programmes

In million EUR (current), 2013



Source: Adapted from the Swiss Federal Finance Administration (FFA), 2014 and ESA, 2013.

### 34. Switzerland

#### Swiss aerospace industry

Switzerland has a small but dynamic aerospace sector, focussing on aircraft manufacturing and Maintenance, Repair and Overhaul (MRO) activities. These two industries employed, according to the Swiss Statistical Office, about 3 000 full-time-equivalents in 2011 in manufacturing and 5 500 full-time equivalents in MRO, mainly in the cantons of Basel, Zurich and Nidwalden. Activities include manufacturing structural components, aircraft and helicopter systems integration. Aerospace exports accounted for 1% of total Swiss exports in 2012, at USD 2.2 billion (OECD, 2013). Main export markets were the United States, the United Arab Emirates, France and the United Kingdom. The country imported aerospace products for a total value

of USD 2.4 billion, mainly from France (accounting for a third of all imports), the United Kingdom and the United States.

#### Sources

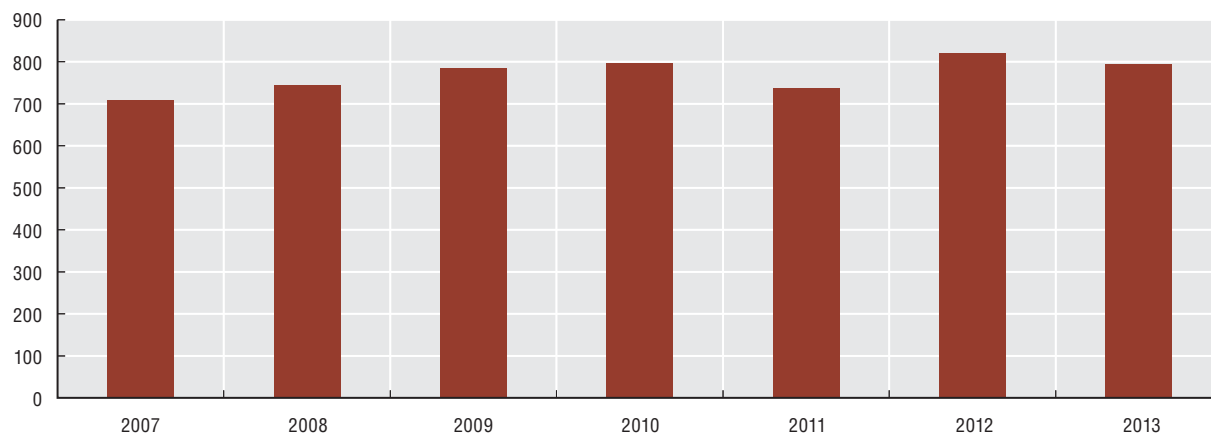
Eurospace, [www.eurospace.org](http://www.eurospace.org).

OECD STAN Bilateral Trade Database by Industry and End-use (BTDIxE), data extracted April 2014, [www.oecd.org/sti/btd](http://www.oecd.org/sti/btd).

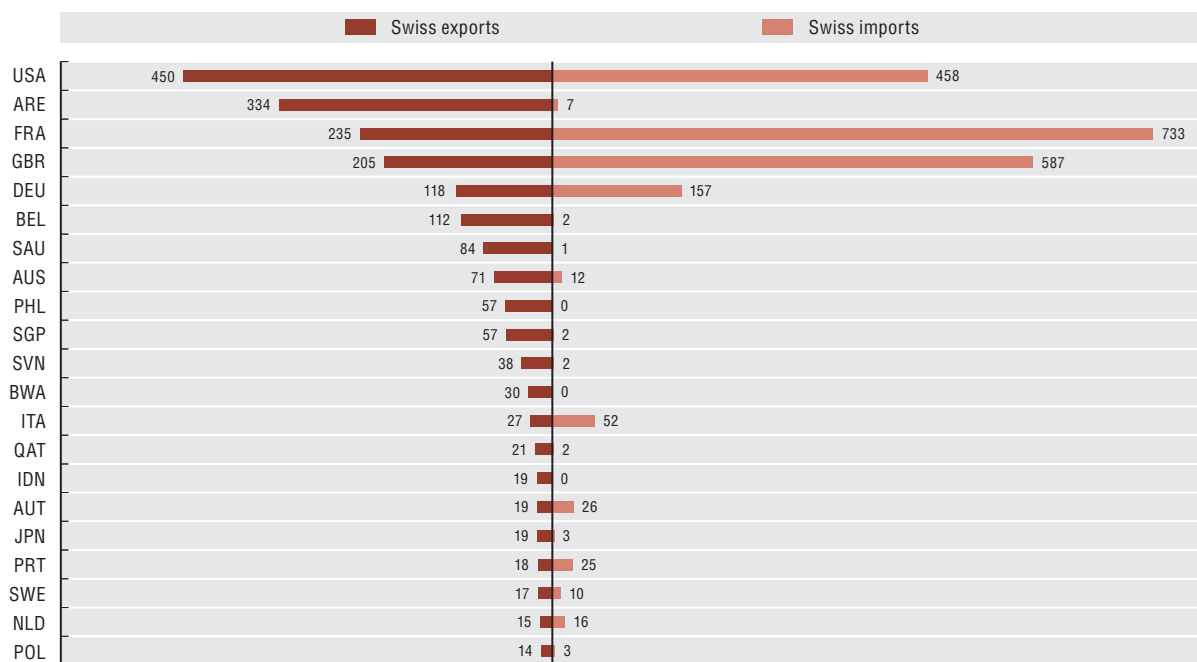

OECD, *Main Science and Technology Indicators database*, [www.oecd.org/sti/msti](http://www.oecd.org/sti/msti).

Swiss Federal Finance Administration (FFA) (2014), *budgets & suppléments*, 2008-2013, Bern.

Swiss Statistical Office (2011), *Arbeitsstätten und Beschäftigte bei Jahr, Wirtschaftsart* (NOGA 2008), updated 31.12.2011, Bern.

**34.4. Space manufacturing industry employment in Switzerland***Number of full time equivalents, 2007-13*

Source: Eurospace, 2014.

**34.5. Switzerland's main aerospace trading partners***In USD million (current), 2012*Source: OECD STAN Database, 2014, [www.oecd.org/sti/btd](http://www.oecd.org/sti/btd).StatLink  <http://dx.doi.org/10.1787/888933142178>



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