Space Activities in Korea
President

Ministry of Science and ICT (MSIT)

KARI
(According to Space Development Promotion Act, as of December 22, 2016, KARI is designated as the national organization for space development)

Industry
Research Institute
University

National Space Committee
Space Development Working Committee
Other Ministries
Other Government Funded Institute
Korean government's yearly space budget rapidly increased in recent years from 440 million USD in 2014 to 502 million USD in 2019.

- Satellite & Ground System: 38.3%
- Launch Vehicle & Space Center: 30.7%
- Satellite Data & Information Service: 15.4%
- Space Exploration: 10.7%
- Basic R&D for Future Technology: 4.9%

1 USD = 1,158.8 KRW (Bank of Korea)
Private sector: Incremental growth


- Y2017 Size of Korea’s Space Industry 2.8 billion USD, 0.2% out of GDP.

<table>
<thead>
<tr>
<th>Year</th>
<th>Market Size [Mill. USD]</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>1,716</td>
</tr>
<tr>
<td>2014</td>
<td>2,051</td>
</tr>
<tr>
<td>2015</td>
<td>2,059</td>
</tr>
<tr>
<td>2016</td>
<td>2,300</td>
</tr>
<tr>
<td>2017</td>
<td>2,808</td>
</tr>
</tbody>
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- Y2017 Number of Space Company: 326, 2 times bigger than 147 in Y2013

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>147</td>
</tr>
<tr>
<td>2014</td>
<td>248</td>
</tr>
<tr>
<td>2015</td>
<td>300</td>
</tr>
<tr>
<td>2016</td>
<td>309</td>
</tr>
<tr>
<td>2017</td>
<td>326</td>
</tr>
</tbody>
</table>

Market size by sector (2017)

- Y2017, Space application service and equipment 88.6%
  - then, ground system, launch vehicle manufacture, etc.

- Breakdown of 2.8 billion USD:
  - Satellite manufacture: 3.2%
  - Launch Vehicle manufacture: 3.6%
  - Ground system: 3.6%
  - Insurance: 0.8%
  - Space exploration: 0.1%
  - Space science: 0.1%

[Mill. USD]

2018 Space Survey
II. Space Activities
Progress of Space Activities

Satellite


Launch Vehicle

Satellites under Development

**Optical Satellite – CAS(Compact Advanced Satellite) 500 series**
- **Mission**: Securing next generation satellite standard platform of 500kg class & independent development of high precision earth observation 500kg satellite
- **Spec.**: Weight – 500kg, Resolution – Pan. 0.5m, Color 2m

**Radar Satellite – KOMPSAT-6**
- **Mission**: Independent development of high resolution satellite with SAR payload
- **Launch**: 2021
- **Spec.**: Weight – 1.4 ~ 1.8 ton, Resolution – 0.5m / 3m / 20m

**Optical Satellite – KOMPSAT-7**
- **Mission**: Independent development of high resolution optical satellite with IR sensor
- **Launch**: 2021
- **Spec.**: Weight – 1.5 ~ 1.8 ton, Resolution – Pan 0.3m, Color 1.2m, IR 4.5m

**Geostationary Satellite – GEO-KOMPSAT**
- **Mission**: Independent development of GEO-KOMPSAT & its core technology
- **Launch**: 2A(2018), 2B(2020)
- **Spec.**: Resolution – Meteo. 1km / Ocean 250m / Environ. 2.5km
Korea Space Launch Vehicle (KSLV)-II

**Overview**

Space Launch Vehicle Capable 1.5ton Payload to SSO

**Specification**

- 3 Stage Vehicle
- Length/Diameter: 47.5m / 3.5m
- Liftoff Weight: 200ton
- Payload Weight: 1.5ton
- Orbit: 600~800km Circular Orbit (SSO)
- Propulsion System
  - 1st Stage: 75 ton x 4 Clustering
  - 2nd Stage: 75 ton Liquid Engine
  - 3rd Stage: 7 ton Liquid Engine
Korean SBAS (Satellite Based Augmentation System)

Overview

Develop a Satellite Based Augmentation System, which provides corrected & integrity information while meeting the performance requirements in ICAO standard Annex 10

Purpose

October. 2014 ~ October. 2022

Duration

Provide APV-I Safety of Life (SoL) Service
Accuracy: 16m(Hor.), 20m(Ver.) / *DH: 75m
*APV: Approach Procedure with Vertical Guidance

Performance

R&D for CAT-I Technology
Accuracy: 16m(Hor.), 6m(Ver.) / *DH: 60m

Safety-of-Life Service

After completion of deployment in 2022

Expected Outcome

- Increase air traffic volume while maintaining aviation safety in the future
- Minimize air traffic congestion
- Contribute to securing airspace & domestic industrial growth

Air Traffic Volume in 2010

*DH: Decision Height
Space Exploration

2022
- Phase I
  - Korea Pathfinder Lunar Orbiter (KPLO)

2030
- Phase II
  - Lunar Lander

2035
- Phase III
  - Asteroid Sample Return

And Beyond
- Pursue deep space exploration of asteroids, Mars, comets by utilizing micro-satellites
- Development of space telescope (1m class) for space science
- Active participation in international exploration projects
III. Space Cooperation
International Cooperation

- **3rd Korea – France Space Forum (May 2019)**
  - Promoted space cooperation among Korean and French industries and organizations

- **Korea (KARI) – India (ISRO) IA for Cooperation in Space Exploration (June 2019)**
  - Established a Joint Working Group to conduct a feasibility study for a joint lunar exploration project

- **Korea Space Forum (July 2019)**
  - Focused on Space industry, analyzing the current barriers in New Space Era

- **10th KARI International Space Training (KARIST) (July 2019)**
  - To develop the capability of space technology & its application for countries in Asia-Pacific, South America and Africa
  - 32 experts attended from 20 countries
  - In celebration of the 10th Space Training Program, Prepared a special session dedicated to UNOOSA and invited UN-SPIDER experts and alumni

- **70th IAC (October 2019)**
  - Operated exhibition booth with 10 space industries from Korea to promote Korea’s space industry
2020 Korea Space Forum (KSF)

✓ (Theme)
- New Space Cooperation

✓ (Agenda)
- To establish space network and platform

✓ (Date & Venue)
- Date: July 16th~17th, 2020
- Venue: TBD

✓ (Organizers)
- Ministry of Science and ICT of KOREA
- Korea Aerospace Research Institute
- Korea Association for Space Technology Promotion

✓ (Program) -TBD
- Program on various subjects including Space policy / Space Technology / International Cooperation / Space Industry / Space Exploration
- (Day 1) New Space/ Space Awareness, Latest Space Policy Sharing and Networking
- (Day 2) Korean Industry Symposium for Promotion of Export Network (Networking Session)
Thank you