Status of the space programmes after Luxembourg 2014 and Lucerne 2016

1. Introduction
2. Belgian space activities in 2018
3. Return
4. Way forward in 2019
5. Preparation of Space19+

BELSPO info session – 18 January 2019
Status of the space programmes after Luxembourg 2014 and Lucerne 2016

1. Introduction
2. Belgian space activities in 2018
3. Return
4. Way forward in 2019
5. Preparation of Space19+

BELSPO info session – 18 January 2019
Global situation

• BELSPO
  – No chairman since Feb 2018
  – No progress in the integration of Belspo in another administration
  – No progress in the setting up of a Belgian space agency
  – New HoD to ESA on 01/01/2019: F. Monteny takes over from J. Nijskens
  – Retirement of Director J. Nijskens end Feb 2019 and recruitment of a new director in 2019
• ESA
  – Implementation of the decisions of the ESA-CM at Luxembourg in Dec 2014 and at Lucerne in Dec 2016, mainly for BE:
     2014 - Development of Ariane-6 and Vega-C
     2014-2016 - Techno programmes (GSTP, ARTES)
     2014-2016 - Support to scientists (PRODEX)
     2016 - Altius mission
     2016 - Vegetation follow-up
  – IMM at Madrid in Oct 2018
     Relations between ESA and EU
     Strategic guidelines for the preparation of the ESA programmes and activities
     Signature by ESA, DE, FR, IT, ES and CH of a Declaration on the grouped procurements for launch services for their institutional missions
  – Space19+: next ESA-CM at Seville in Nov 2019
• EU
  – Deployment of GALILEO
  – Deployment of COPERNICUS
  – Supporting space R&D with H2020
  – Preparing the future (2021-2027)
    ➢ Regulation for the European Space Programme
    ➢ EU Agency for the Space Programme (EUSPA)
    ➢ New R&D framework programme "Horizon Europe"

• BELSPO info session – 09/11/2018
1. Introduction


3. Return

4. Way forward in 2019

5. Preparation of Space19+

BELSPO info session – 18 January 2019
Content

• ESA Programmes
  – Basic Activities
  – The Science Programme
  – Earth Observation
  – Telecom
  – Navigation
  – Exploration
  – Space Transportation
  – SSA Programme
  – Support to scientists (PRODEX)
  – Technology Programme (GSTP)
  – Others: ESEC, NTP

• Bilateral Programmes

• National Programmes
Basic Activities
hendrik.verbeelen@belspo.be

- Discovery, Preparation and Technology Development Programme (DPTD) succeeds to TRP and GSP
The Science Programme
werner.verschueren@belspo.be

• Operations in orbit
  – XMM, CLUSTER, INTEGRAL, MARS EXPRESS, GAIA, BEPI COLOMBO
  – EXOMARS/TGO
  – HST, SOHO, HINODE, IRIS

• Development
  – CHEOPS, SOLAR ORBITER, EUCLID, JUICE, PLATO, ARIEL, ATHENA, LISA
  – F1, M5 (ENVISION or SPICA or THESEUS)
  – EXOMARS 2020, PROBA-3
  – JWST, SMILE, EINSTEIN PROBE, XRISM, MMX

• Future calls
  – S, M, L missions
  – New Missions of Opportunity

• Basic activities
  – Technology development
  – Science management support
  – Programme contingency
• Copernicus space component
  – Current launched Sentinels
    ➢ Sentinel-1A: 03/04/2014, Soyuz ST
    ➢ Sentinel-2A: 22/06/2015, Vega
    ➢ Sentinel-3A: 16/02/2016, Rockot
    ➢ Sentinel-1B: 25/04/2016, Soyuz ST
    ➢ Sentinel-2B: 06/03/2017, Vega
    ➢ Sentinel-5P: 13/10/2017, Rockot
    ➢ Sentinel-3B: 25/04/2018, Rockot
  – Under development
    ➢ Sentinel 4 (instr. MTG)
    ➢ Sentinel 5 (instr. METOP SG)
    ➢ Sentinel 6
  – Production of the recurrent C and D units of Sentinel 1, 2 and 3 is ongoing
"EU Return"

Value of Contracts per Country till end 2017 in % (primes & subcontractors)

- Germany: 30.04%
- France: 27.01%
- Italy: 15.69%
- Netherlands: 14.48%
- Spain: 5.73%
- Sweden: 1.58%
- United Kingdom: 6.02%
- Norway: 3.92%
- Denmark: 0.15%
- Finland: 0.54%
- Greece: 0.23%
- Poland: 0.59%
- Portugal: 0.16%
- Other: 2.11%
- Bulgaria: 0.03%
- Croatia: 0.01%
- Cyprus: 0.03%
- Czech Republic: 0.04%
- Estonia: 0.02%
- Hungary: 0.04%
- Ireland: 0.07%
- Luxembourg: 0.02%
- Romania: 0.04%
- Slovenia: 0.06%
- Iceland: 0.01%
- N/S: 0.06%
• Sentinel expansion missions
  – 2 phase A/B1 studies in EOEP in parallel for each of the 6 types of expansion missions
    ➢ CO2M (CO$_2$-monitoring)
    ➢ PICE (Polar snow and ice Topo)
    ➢ LSTM (Land Surface Temperature Monitoring) (TIR)
    ➢ CHIME (Hyperspectral)
    ➢ CIMR (Passive Microwave Radiometer (PMR))
    ➢ ROSE-L (L-band-SAR)
  – Belgian involvement known in one of the parallel study for the hyperspectral expansion mission (AMOS and VITO)
  – Procurement ITT’s for the expansion missions will be published in a staggered way from mid 2019 till end 2019
• Earth Watch: ALTIUS Programme
  – May 2016: ALTIUS included as a new EW element

<table>
<thead>
<tr>
<th></th>
<th>Belgium</th>
<th>Luxembourg</th>
<th>Canada</th>
<th>Romania</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>91,72 M€</td>
<td>2,00 M€</td>
<td>3,20 M€</td>
<td>1,05 M€</td>
</tr>
</tbody>
</table>

– 2018
  ➢ 27/09 IPC: approval of the procurement proposal
  ➢ Continuation of instrument pre-development (1.5 year, OIP)
  ➢ Space segment system consolidation phase (1 year, QinetiQ Space)
  ➢ Start of the ground segment preparatory phase (1 year, Spacebel)

– 2019
  ➢ Q1: release of RFQ for the space segment and FOS (B2/C/D)
  ➢ Q3: start of phase B2/C/D for the space segment and FOS
  ➢ Space19+: budgets for launch and operations
• Earth Watch: PROBA-V Exploitation
  – PROBA-V launched on 07/05/2013
  – Operational lifetime: initially 5 years until Dec 2018, currently extended until Nov 2019
  – PROBA-V Mission Exploitation Platform (MEP)
    ➢ "Bring user to the data"
    ➢ Technology contributes to Copernicus
    ➢ Terrascope (collaborative ground segment)
  – Under investigation
    ➢ Further extension of the operations of PROBA-V beyond 2019
• VGT follow-up
  – Budget foreseen at CM 2016: 48,81 M€ currently in GSTP Fly
  – Extension and Expansion of PROBA-V mission
  – 3 IOD missions based on multi-cubesats (12 U), each with a specific payload
    ➢ TMA
      ✓ Use of a spare TMA camera of PROBA-V
      ✓ Fly together with PROBA-V
      ✓ Launch: 2020 TBC
    ➢ TIR
      ✓ Qualification of a military camera
      ✓ To prepare a constellation
      ✓ Launch of proto-flight: 2021 TBC
    ➢ Hyperspectral
      ✓ CHIEM camera in development
      ✓ Launch: 2021 TBC
ARTES = Advanced Research in Telecommunications Systems

FP = Future Preparation
CC = Core Competitiveness
BA = Business Applications (formerly IAP)
Partner = Public Private Partnerships (PPP)
TBA = To Be Allocated
### Financial status ARTES end 2018 (M€)

<table>
<thead>
<tr>
<th>Element</th>
<th>e.c.</th>
<th>Subscriptions before 2016</th>
<th>Subscriptions 2016</th>
<th>Transfer from TBA (2016 e.c.)</th>
<th>Balance</th>
<th>Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>FP</td>
<td>2016</td>
<td></td>
<td>0,80</td>
<td>0,00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CC</td>
<td>2016</td>
<td>4,86</td>
<td>48,41</td>
<td>6,25</td>
<td>0,00</td>
<td>-8,14</td>
</tr>
<tr>
<td>BA</td>
<td>2016</td>
<td>1,82</td>
<td>6,25</td>
<td>0,00</td>
<td>2,28</td>
<td>-2,40</td>
</tr>
<tr>
<td>SGEO SE1</td>
<td>2006</td>
<td>7,21</td>
<td>0,00</td>
<td>0,00</td>
<td>0,00</td>
<td></td>
</tr>
<tr>
<td>SGEO SE3</td>
<td>2008</td>
<td>0,50</td>
<td>0,00</td>
<td>0,88</td>
<td>0,00</td>
<td></td>
</tr>
<tr>
<td>NEOSAT</td>
<td>2012</td>
<td>12,00</td>
<td>2,82</td>
<td>6,37</td>
<td>0,15</td>
<td>-7,00</td>
</tr>
<tr>
<td>ELECTRA</td>
<td>2012</td>
<td>5,60</td>
<td>0,00</td>
<td>2,35</td>
<td>0,00</td>
<td></td>
</tr>
<tr>
<td>INDIGO</td>
<td>2016</td>
<td>14,00</td>
<td>0,00</td>
<td>0,00</td>
<td>0,11</td>
<td></td>
</tr>
<tr>
<td>ECO</td>
<td>2016</td>
<td>12,60</td>
<td>0,00</td>
<td>0,00</td>
<td>5,68</td>
<td>-5,68</td>
</tr>
<tr>
<td>Govsatcom Prec</td>
<td>2016</td>
<td>8,00</td>
<td>0,00</td>
<td>1,30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QKDSat</td>
<td>2017</td>
<td>0,00</td>
<td>13,15</td>
<td>13,15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TBA</td>
<td>2016</td>
<td>0,71</td>
<td>33,42</td>
<td>29,00</td>
<td>5,13</td>
<td></td>
</tr>
</tbody>
</table>

1 Including ESA costs
• NAVISP
  – Element 1 - Innovation in Satellite Navigation
  – Element 3 - Support to Member States

• Budget
  – BE subscription: 1,98 M€
  – Still available: 0,43 M€
• E3P Phase 1: no new major development

• 4 main destinations
  – LEO
  – Beyond LEO
  – Moon
  – Mars
• Ariane-6, P120-C and Vega-C Programme
  – No request for complementary subscription to BE in 2018
  – Risk provision for Ariane-6 and P120-C
    ➢ Agreed at ESA Council of June 2018
    ➢ Max 80,00 M€
    ➢ BE: max 2,80 M€ (3,5 %) covered by 0,5 % left-over Ariane-6 development
• Ariane-6 and P120-C Transition Programme
  – Support to first batch of contracts for Ariane-6 production: max 200,00 M€ industrial costs
  – Step 1: 2018-2019
    ➢ Open to subscription at ESA Council of June 2018
    ➢ 68,30 M€ e.c. 2017 (including 3,30 M€ ESA costs)
    ➢ BE subscription (Dec 2018): 2,39 M€ (3,5 %)
      covered by 0,5 % left-over Ariane-6 development
  – Step 2: 2020-2023
    ➢ To be subscribed at Space19+
• Space Weather (SWE)
  – Development and pre-operations of services (SSCC, ESC’s, Data Centre)
  – Development of applications
  – Sun-Earth-connection modelling
  – Development of instrumentation for hosted payload missions
  – Operational space weather mission to L5:
    - Phase A/B1 started in 2018 for mission (OHB-DE and Airbus-UK) and payload (RAL-UK and UCL-UK) – for BE: 0,30 M€ for EUV imager in PRODEX
    - Phase B2/C/D to be proposed for Space19+
    - Launch: 2025
    - Cooperation with NASA for payload dev. and observing strategy
• Near-Earth Objects (NEO)
  – Development and pre-operations of services
  – Development and deployment of optical telescopes for survey and orbit determination (Fly-Eye)
  – Development of sensors
  – HERA mission to characterize asteroid Didymos
    ➢ Phase B1 started in 2018 in GSTP for mission (OHB-DE) and payload – for BE: 1,25 M€ for mission and 0,50 M€ for hyperspectral camera
    ➢ Phase B2/C/D to be proposed at Space19+
    ➢ Launch: 2024
    ➢ Cooperation with NASA (impact mission DART)

• Space Surveillance and Tracking (SST)
  – Deployment and validation of radars
  – Development of sensor technology and data processing algorithms
• Financial status PRODEX end 2018
  – In M€, at current e.c.
  – Budget foreseen for period 01/01/2013 - 31/12/2020

<table>
<thead>
<tr>
<th></th>
<th>Subscriptions 2012-2014-2016¹</th>
<th>Balance²</th>
<th>Identified²</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRODEX</td>
<td>148,45</td>
<td>18,70</td>
<td>- 15,56</td>
</tr>
</tbody>
</table>

¹ Including ESA costs
² Industrial costs (without ESA costs)
Financial status GSTP end 2018
- In M€, at current e.c.
- Budget foreseen for period 01/01/2013 - 31/12/2020

<table>
<thead>
<tr>
<th>Subscriptions 2012-2014-2016</th>
<th>Engaged at BELSPO level</th>
<th>Balance</th>
<th>Identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSTP Develop</td>
<td>138,30</td>
<td>- 76,76</td>
<td>25,98</td>
</tr>
<tr>
<td>GSTP Make</td>
<td>35,00</td>
<td>- 34,52</td>
<td></td>
</tr>
<tr>
<td>GSTP Fly</td>
<td>49,81</td>
<td>- 2,21</td>
<td>37,64</td>
</tr>
<tr>
<td>GSTP PROBA-3</td>
<td>50,83</td>
<td>- 42,70</td>
<td>0</td>
</tr>
</tbody>
</table>

1 Including ESA costs
2 Industrial costs (without ESA costs)
Others

• ESEC
  – Total BE support : 5,00 M€
  – Education: 1,70 M€
    ➢ Support to ESERO
    ➢ Transfer and development of activities in Galaxia
  – Security: 1,80 M€
    ➢ Training courses in/for cyber range
    ➢ Secure multi-mission ground station (1 study)
    ➢ Space cyber ops centre (2 studies)
  – Infrastructure: 1,50 M€

• NTP 2019
  – 5 new trainees in 1\textsuperscript{st} year
  – 1 trainee in 2\textsuperscript{nd} year
• Agreements
  – Existing: France, Argentina, Russia, South Africa, Vietnam and China
  – In preparation: UAE and Mexico

• MUSIS
  – Budget
    ➢ Subscribed: 50,00 M€
    ➢ Fully allocated by end 2018
  – Launch CSO-1: Dec 2018
• CVB contract 01/07/2018-30/06/2023 (5 years) for 17,50 M€ signed in Oct 2018

• Selection process of the last call of STEREO-III completed in Dec 2018 - budget: 2,60 M€
Status of the space programmes after Luxembourg 2014 and Lucerne 2016

1. Introduction
2. Belgian space activities in 2018
3. Return
4. Way forward in 2019
5. Preparation of Space19+

BELSPO info session – 18 January 2019
General process

- Participation to programmes proposed by BELSPO to Minister Sci. Pol. including estimation of regional return
  - Based on past statistics for running programmes
  - Based on BELSPO knowledge and interactions with ESA and stakeholders for new programmes
- Intercabinets’ negotiation (with support of BELSPO)
- Decision by the BE-CM on proposition of Minister Sci. Pol.
- Implementation by BELSPO
- Control by Minister Sci. Pol.
  - Reporting by BELSPO (last report in March 2018)
  - Reporting on return every 6 months since 2018
BE return at ESA

- Return in ESA programmes on 30/06/2018

<table>
<thead>
<tr>
<th>Domain</th>
<th>Return coefficient</th>
<th>Deviation (k€)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>1,04</td>
<td>+ 29 666</td>
</tr>
<tr>
<td>Basic Activities</td>
<td>1,91</td>
<td>+ 11 073</td>
</tr>
<tr>
<td>The Science Programme</td>
<td>1,06</td>
<td>+ 2 056</td>
</tr>
<tr>
<td>Earth Observation</td>
<td>1,07</td>
<td>+ 3 948</td>
</tr>
<tr>
<td>Telecom, IAP, Navigation</td>
<td>0,98</td>
<td>- 3 590</td>
</tr>
<tr>
<td>HME</td>
<td>1,14</td>
<td>+ 17 100</td>
</tr>
<tr>
<td>Space Transportation</td>
<td>1,00</td>
<td>- 873</td>
</tr>
<tr>
<td>SSA Programme - Period 3</td>
<td>1,54</td>
<td>+ 971</td>
</tr>
</tbody>
</table>
Return by regions and communities

• Calculation
  – List of contracts for all Belgian entities
    ➢ ESA: information as furnished by ESA
    ➢ Bilateral and national: as implemented by BELSPO
  – Full amount charged to the entity is taken into account
  – Regional repartition: for all private companies based on their location in Belgium
  – Community repartition: for all universities and institutes based on their location in Belgium
### Report March 2018: period 01/01/2015 - 31/12/2017

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STEREO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Industriële werkzaamheden</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brussels Hoofdstedelijk Gewest</td>
<td>38 163</td>
<td>0</td>
<td>9,8</td>
</tr>
<tr>
<td>Vlaams Gewest</td>
<td>213 583</td>
<td>1 430</td>
<td>55,4</td>
</tr>
<tr>
<td>Waals Gewest</td>
<td>131 094</td>
<td>3 672</td>
<td>34,7</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>382 841</td>
<td>5 102</td>
<td></td>
</tr>
<tr>
<td><strong>Wetenschappelijke werkzaamheden</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Universiteiten en onderzoekscentra van de Vlaamse Gemeenschap</td>
<td>14 773</td>
<td>11 595</td>
<td>28,0</td>
</tr>
<tr>
<td>Universiteiten en onderzoekscentra van de Franse Gemeenschap</td>
<td>35 900</td>
<td>3 408</td>
<td>41,8</td>
</tr>
<tr>
<td>Federale wetenschappelijke instellingen</td>
<td>23 614</td>
<td>1 211</td>
<td>26,4</td>
</tr>
<tr>
<td>Internationale wetenschappelijke instelling (VKI)</td>
<td>3 544</td>
<td>3,8</td>
<td></td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>77 831</td>
<td>16 214</td>
<td></td>
</tr>
<tr>
<td><strong>Installaties ESA</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Testcentrum ESA (CSL)</td>
<td>1 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESEC in Redu</td>
<td>3 499</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overzeese installaties (CSG)</td>
<td>3 315</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>7 814</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lanceringen (Arianespace) + LEAP</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>25 923</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td><strong>Niet per bedrijf gesplitste bedragen</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>88 354</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ALGEMEEN TOTAAL</strong></td>
<td>582 763</td>
<td>21 316</td>
<td></td>
</tr>
</tbody>
</table>
### Industriële werkzaamheden

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STERO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brussels Hoofstede</td>
<td>86 126</td>
<td>0</td>
<td>16,9</td>
</tr>
<tr>
<td>Vlaams Gewest</td>
<td>219 528</td>
<td>1 430</td>
<td>43,3</td>
</tr>
<tr>
<td>Waals Gewest</td>
<td>199 709</td>
<td>3 672</td>
<td>39,8</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>505 363</td>
<td>5 102</td>
<td></td>
</tr>
</tbody>
</table>

### Wetenschappelijke werkzaamheden

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STERO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universiteiten en onderzoekscentra van de Vlaamse Gemeenschap</td>
<td>18 640</td>
<td>11 595</td>
<td>27,5</td>
</tr>
<tr>
<td>Universiteiten en onderzoekscentra van de Franse Gemeenschap</td>
<td>42 465</td>
<td>3 408</td>
<td>41,8</td>
</tr>
<tr>
<td>Federale wetenschappelijke instellingen</td>
<td>28 773</td>
<td>1 211</td>
<td>27,3</td>
</tr>
<tr>
<td>Internationale wetenschappelijke instelling (VKI)</td>
<td>3 753</td>
<td></td>
<td>3,4</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>93 632</td>
<td>16 214</td>
<td></td>
</tr>
</tbody>
</table>

### Installaties ESA

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STERO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testcentrum ESA (CSL)</td>
<td>1 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ESEC in Redu</td>
<td>3 669</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overzeese installaties (CSG)</td>
<td>18 788</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>23 458</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Lanceringen (Arianespace) + LEAP

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STERO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Totaal</strong></td>
<td>27 677</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

### Niet per bedrijf gesplitste bedragen

<table>
<thead>
<tr>
<th></th>
<th>ESA (k€)</th>
<th>BIL/VGT/STERO (k€)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Totaal</strong></td>
<td>1 108</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**ALGEMEEN TOTAAL** | 651 238 | 21 316 |
Specific report on return to Minister Sci. Pol. (Z. Demir) on 28/06/2018

<table>
<thead>
<tr>
<th>Région</th>
<th>01/01/2015-31/12/2017 (%)</th>
<th>01/01/2015-31/03/2018 (%) - (A)</th>
<th>Post 31/03/2018 (%) - (B)</th>
<th>Cumul (A) et (B) (%)</th>
<th>CM ESA Lucerne (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>effectif (cf. rapport spatial 2018)</td>
<td>effectif</td>
<td>estimé</td>
<td>effectif et estimé</td>
<td>estimé en décembre 2016</td>
</tr>
<tr>
<td>Bruxelles</td>
<td>9,8</td>
<td>17,4</td>
<td>16</td>
<td>17</td>
<td>19</td>
</tr>
<tr>
<td>Flandre</td>
<td>55,4</td>
<td>43,3</td>
<td>56</td>
<td>49</td>
<td>50</td>
</tr>
<tr>
<td>Wallonie</td>
<td>34,7</td>
<td>39,3</td>
<td>28</td>
<td>34</td>
<td>31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>estimé</td>
<td>effectif</td>
<td>estimé</td>
<td>effectif</td>
<td>estimé</td>
<td>Effectif</td>
</tr>
<tr>
<td>Bruxelles</td>
<td>12</td>
<td>10</td>
<td>1</td>
<td>3</td>
<td>139</td>
<td>147</td>
</tr>
<tr>
<td>Flandre</td>
<td>66</td>
<td>69</td>
<td>65</td>
<td>65</td>
<td>23</td>
<td>14</td>
</tr>
<tr>
<td>Wallonie</td>
<td>22</td>
<td>21</td>
<td>34</td>
<td>32</td>
<td>38</td>
<td>39</td>
</tr>
</tbody>
</table>

1 Includes ULB, VUB and the Federal Scientific Institutions
1. Introduction

2. Belgian space activities in 2018

3. Return

4. Way forward in 2019

5. Preparation of Space19+

BELSPO info session – 18 January 2019
Way forward in 2019

• Further implementation of BE priorities
  – Through mandatory and optional programmes of ESA
  – Through GSTP, ARTES and PRODEX
  – Altius
  – Vegetation follow-up
  – …

• Preparation of a proposition to Minister Wilmès to reallocate 20 M€ from the 49 M€ originally foreseen for Vegetation follow-up to GSTP and ARTES
Status of the space programmes after Luxembourg 2014 and Lucerne 2016

1. Introduction
2. Belgian space activities in 2018
3. Return
4. Way forward in 2019
5. Preparation of Space19+

BELSPO info session – 18 January 2019
Space19+

- Seville on 27 and 28 Nov 2019
- Period 2020-2024 (5 years)
- Programmes distributed in 4 pillars
  - Science and Exploration
  - Safety and Security
  - Applications (Earth Observation – Telecom – Navigation)
  - Enabling and Support (Space Transportation – Technology and Scientific Support – Operations)
• Evolution of ESA industrial policy
• First drafts of proposals expected from ESA in April 2019: 1st Council working group on 17/04/2019
• BE budgets
  – Same level of ~ 205 M€/year
  – Opening for new engagements: ~ 400 M€
• Information to stakeholders
  – Structured interactions with space organisations
  – On demand
  – Usual briefing and debriefing sessions
Thank you