



Images from Space Directly to School Computer

Mrs. Olga Gershenzon,
co-founder, Deputy General Director

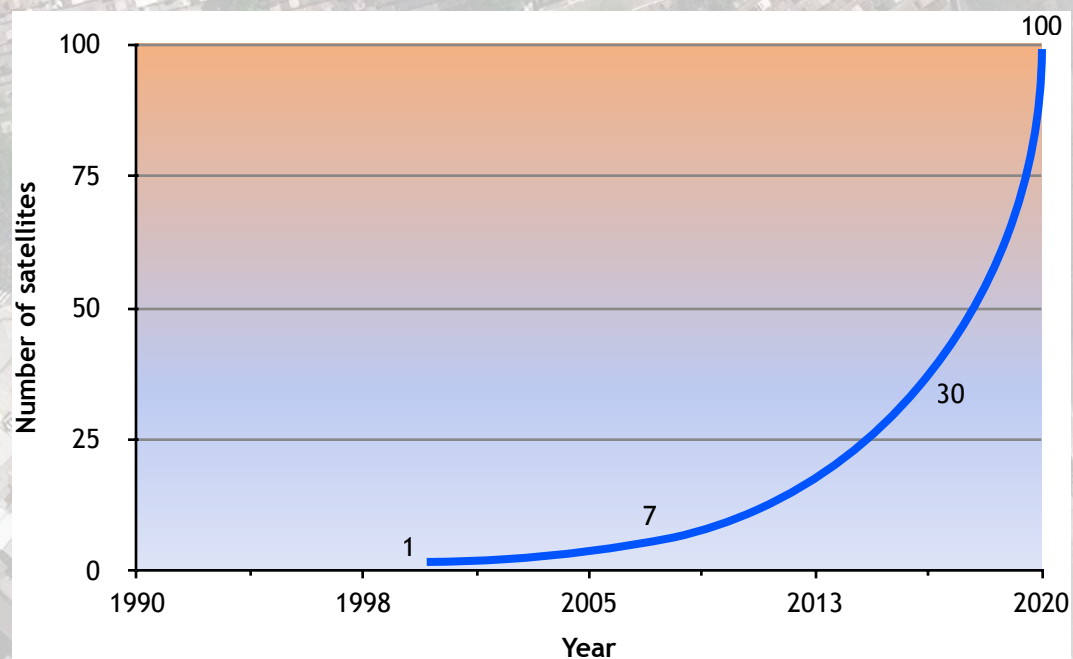
BETT Show, London, UK
January 22-25, 2020



1. The most important problem – **competition between companies – owners of satellites.**
2. Increasing number of satellites with VHR.
3. Increasing number of companies in area of Business Intelligence.
4. Lack of data with Zero Latency delivery.
5. Open (copyright free) images from Space are usually “old” and therefore cannot help to act in Real Time.
6. Lack of opportunities to use Earth observation data and GIS technologies in school education and career guidance

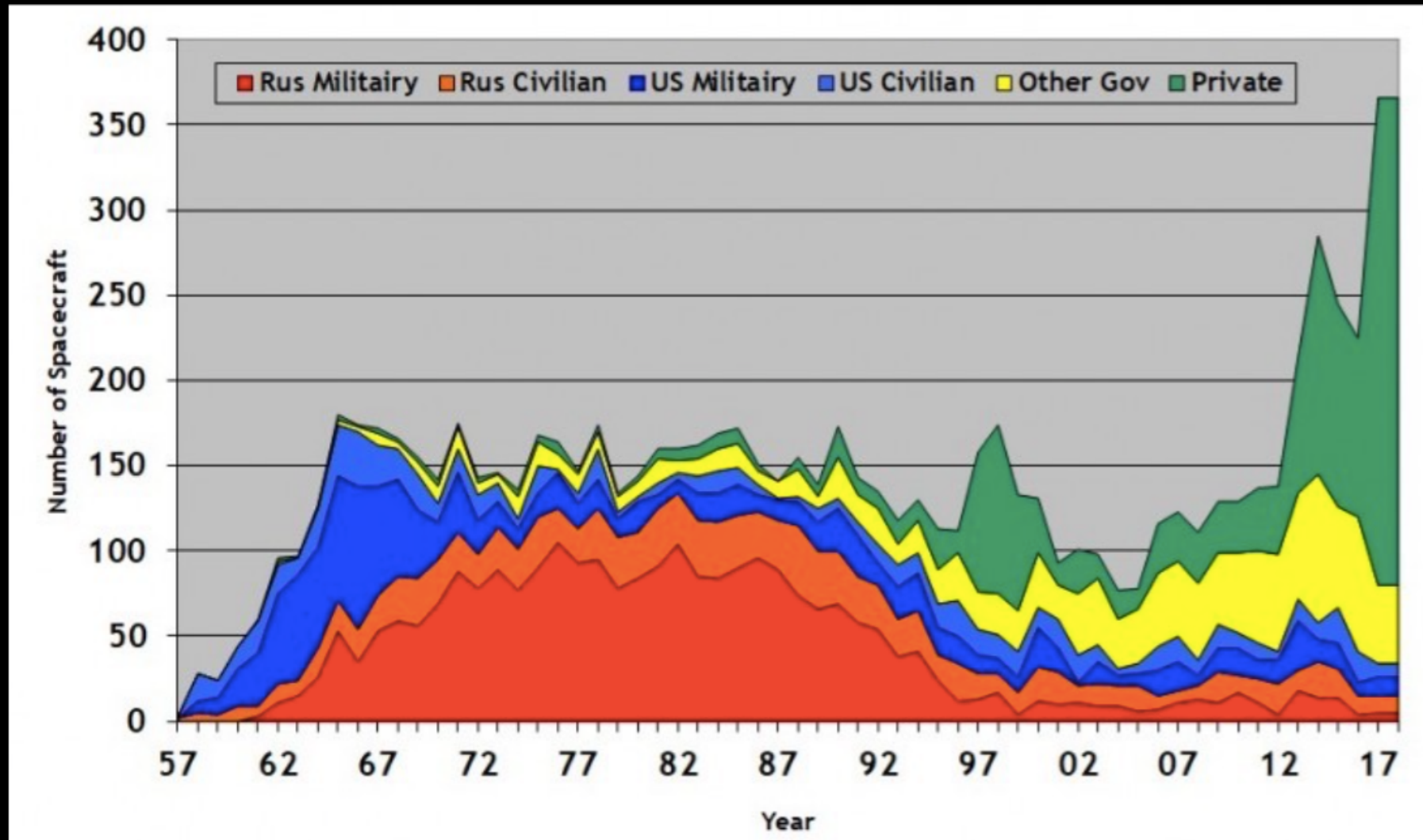


SATELLITES WITH VHR: THE DEVELOPMENT TREND



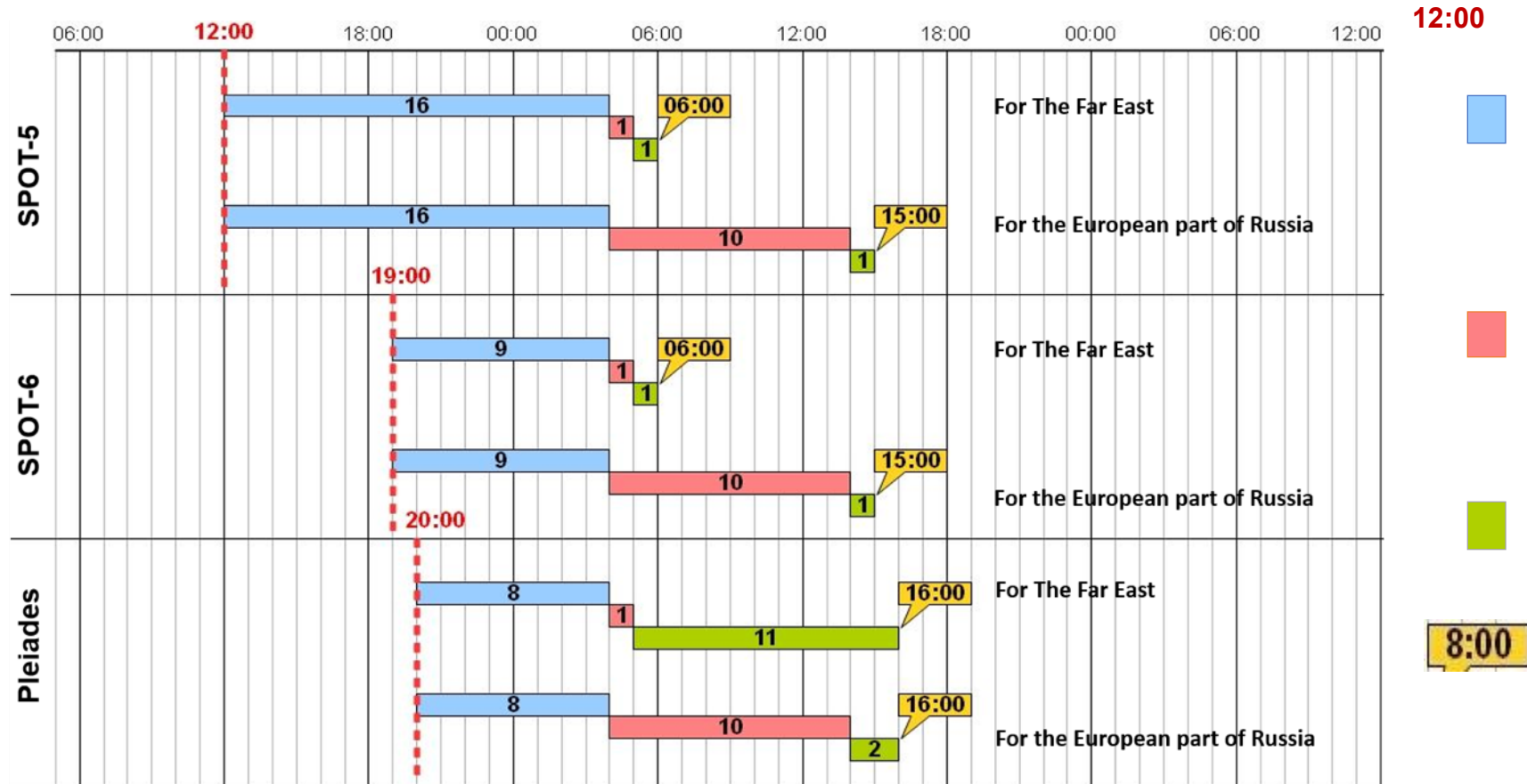
São Paulo, Brazil. Worldview-3 satellite image (0.3 m resolution)

Number of Spacecraft Launched, 1957-2017



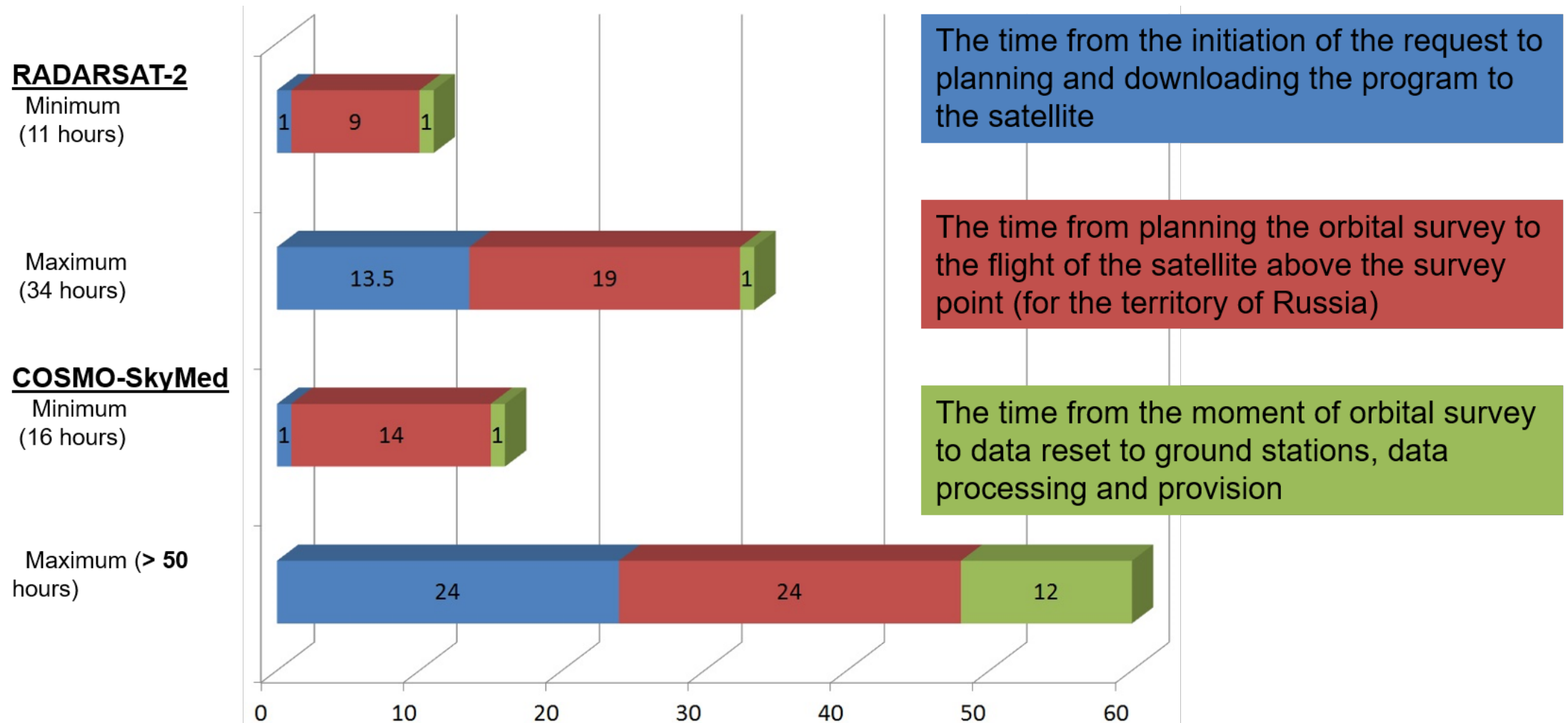
Source: <http://claudelafleur.qc.ca>

Our experience, optical data delivery time in Emergency request



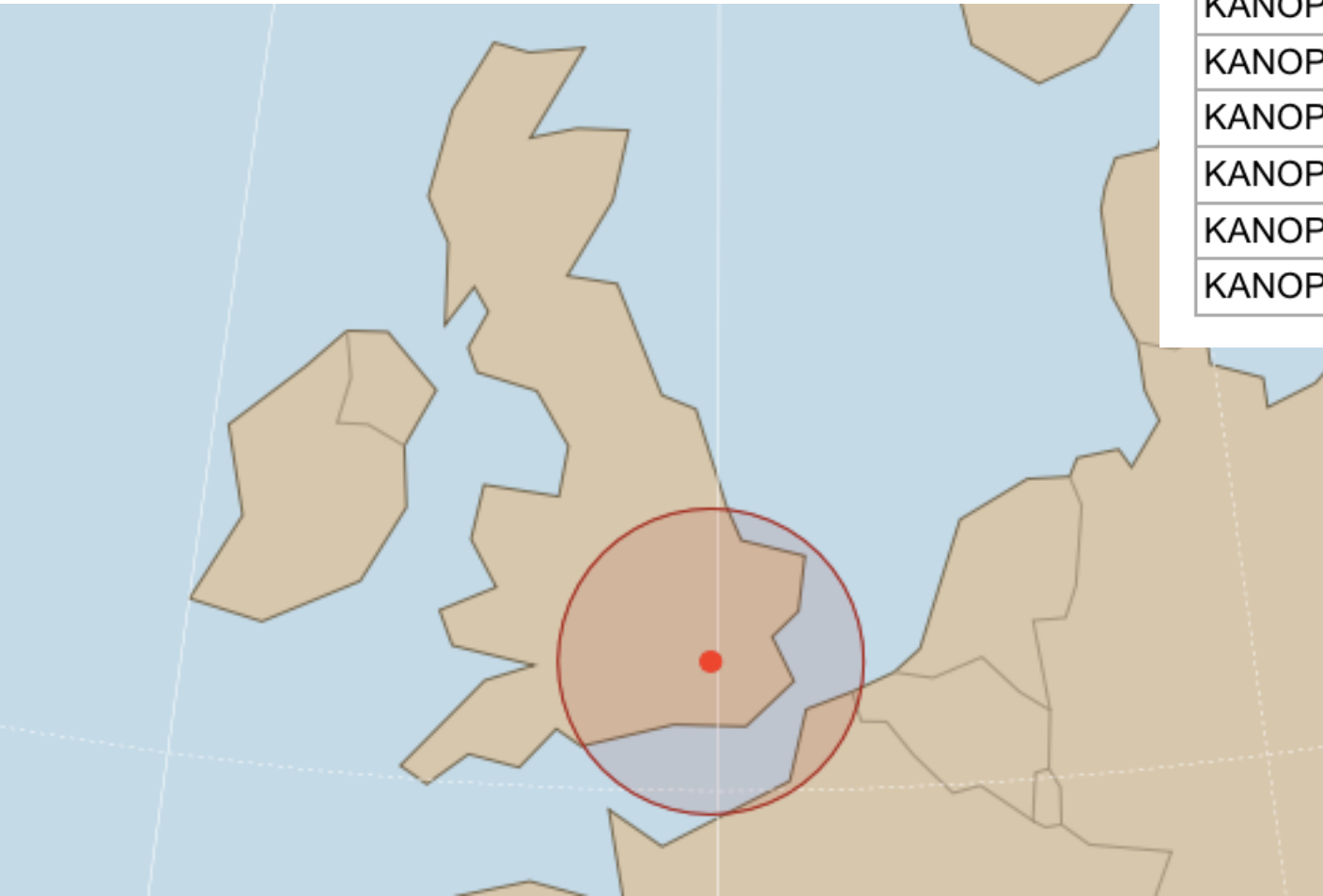
- Application deadlines.
- The period of time from including the application in the survey plan to the first possible orbital survey (for the territory of the Russian Federation).
- The period from the moment of orbital survey to the discharge to the ground stations, processing and provision of data.
- The period of possible orbital survey (for different regions of Russia).
- Approximate time of delivery satellite images and processing results.

Our experience, radar data delivery time in Emergency request





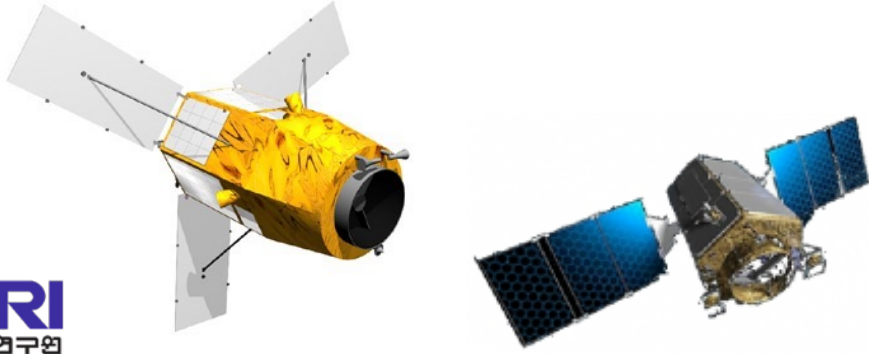
KANOPUS-V 3	20.01.20 10:51	10:51	85
KANOPUS-V-IK	21.01.20 10:52	10:53	82
KANOPUS-V 1	21.01.20 11:34	11:34	82
KANOPUS-V 6	22.01.20 10:55	10:55	76
KANOPUS-V 6	23.01.20 10:38	10:38	71
KANOPUS-V 4	23.01.20 10:56	10:57	75
KANOPUS-V 4	24.01.20 10:39	10:39	71
KANOPUS-V 5	25.01.20 10:41	10:41	76
KANOPUS-V 3	26.01.20 10:42	10:43	79
KANOPUS-V-IK	27.01.20 10:44	10:45	82
KANOPUS-V 1	27.01.20 11:25	11:26	81



LoReTT/
London, UK

$R = 200 \text{ km}$

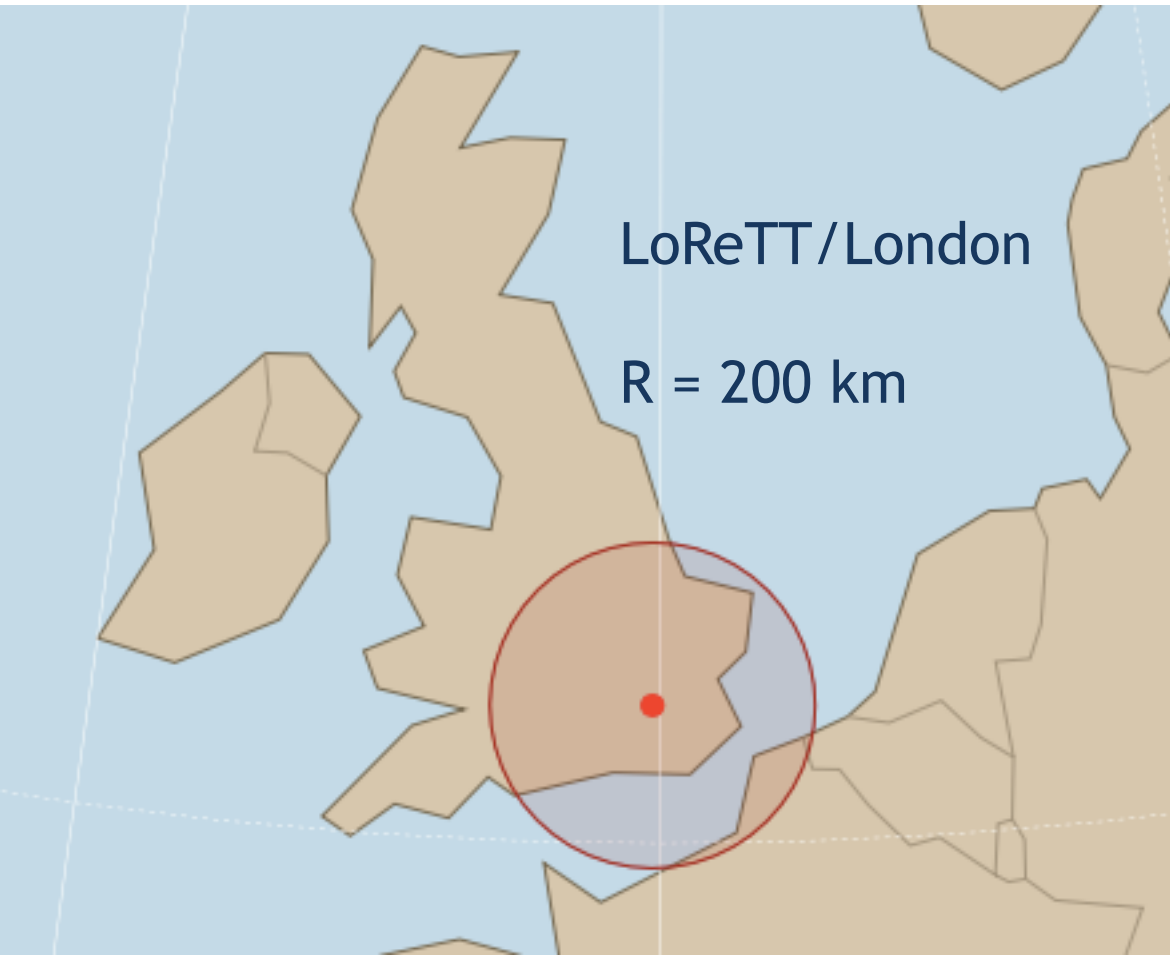




High resolution (1 m and better):

DMC3-FM2	2020-01-22 10:03:28	10:04:00	73.1
NUSAT-1 (FRESCO)	2020-01-22 12:00:43	12:01:15	76.4
DMC3-FM2	2020-01-22 23:26:25	23:26:31	70.2
DMC3-FM1	2020-01-23 09:57:51	09:58:43	79.8
DMC3-FM1	2020-01-23 23:20:40	23:21:26	76.5
NUSAT-4 (ADA)	2020-01-24 01:36:34	01:36:52	71.8
ARIRANG-2 (KOMPSAT-2)	2020-01-24 09:38:27	09:39:07	74.0
DMC3-FM3	2020-01-24 09:52:07	09:53:05	84.5
KAZEOSAT 1	2020-01-24 11:04:48	11:05:44	77.5
ARIRANG-3 (KOMPSAT-3)	2020-01-24 12:38:34	12:39:32	80.8
NUSAT-4 (ADA)	2020-01-24 14:33:03	14:33:17	71.0
DMC3-FM3	2020-01-24 23:14:52	23:15:54	88.3
ARIRANG-3 (KOMPSAT-3)	2020-01-25 02:07:42	02:08:48	89.6
DMC3-FM2	2020-01-25 09:45:31	09:46:21	78.4
KAZEOSAT 2	2020-01-25 10:04:14	10:05:12	87.2
KAZEOSAT 1	2020-01-25 21:42:01	21:43:01	80.0
NUSAT-1 (FRESCO)	2020-01-25 22:59:41	23:00:11	75.1
DMC3-FM2	2020-01-25 23:08:13	23:09:09	82.0
KAZEOSAT 2	2020-01-25 23:22:26	23:23:24	88.9

VC





LoReTT – Local Real Time Tool



We are creating demand

01

The creating of
demand through
existing projects

02

First commercial
delivery

03

Looking for
strong
partnership with
satellites owners





Creating
of demand
through
existing
projects

Pilot projects in schools



Sealpups-2018/19 Project

Goal: organization of the operational headquarters in order to prevent the death of sealpups during icebreaking in the White Sea

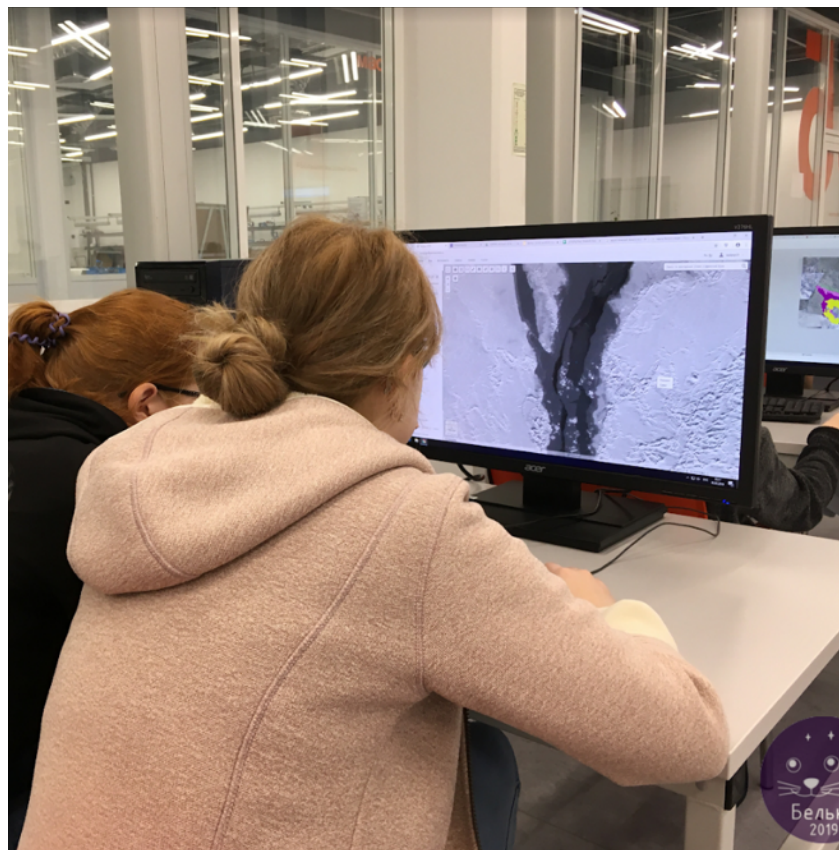
Staff Algorithm

1. Satellite images reception
2. Satellite images processing and analysis
3. Find harp seals whelping grounds
4. Predict the movement of ice
5. Notify the ports' administration
6. Reporting

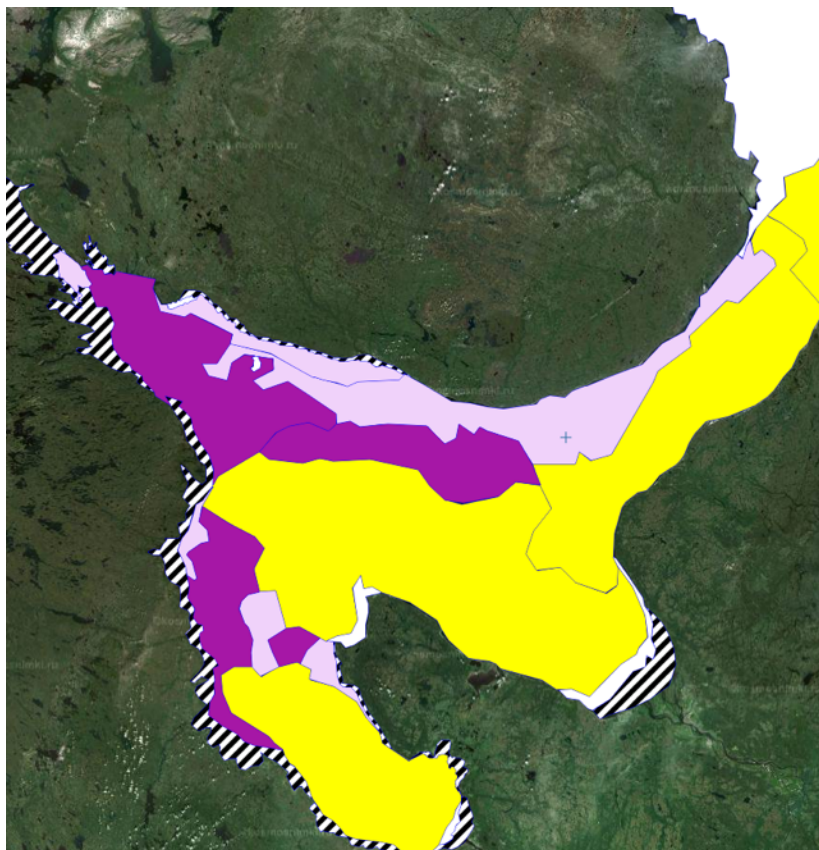




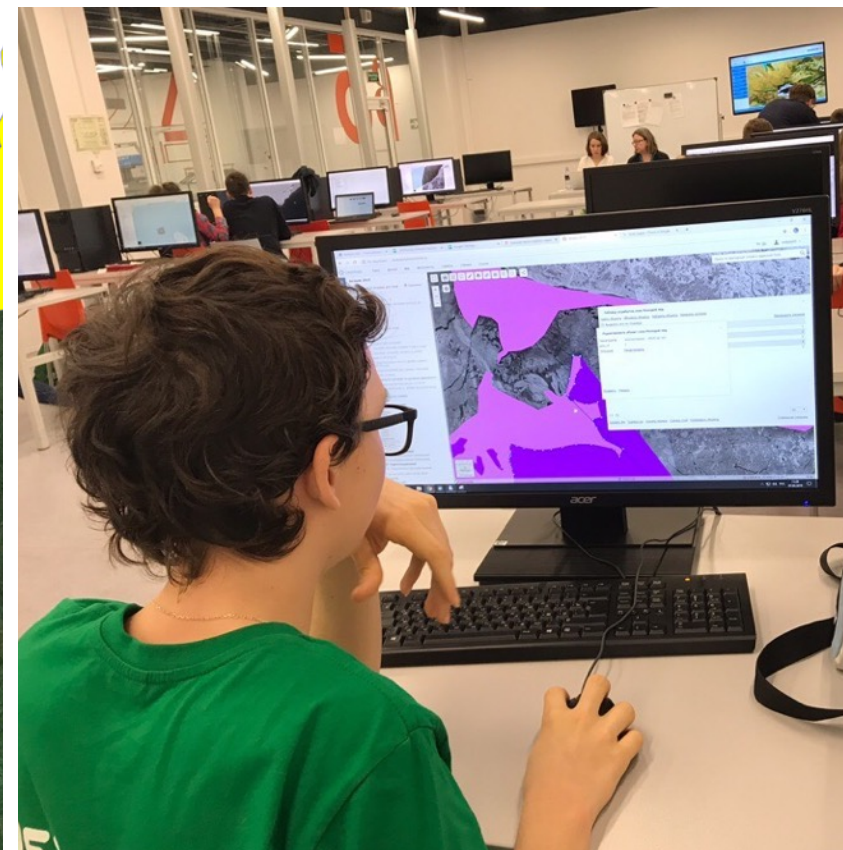
Image Processing & Analysis



Monitoring



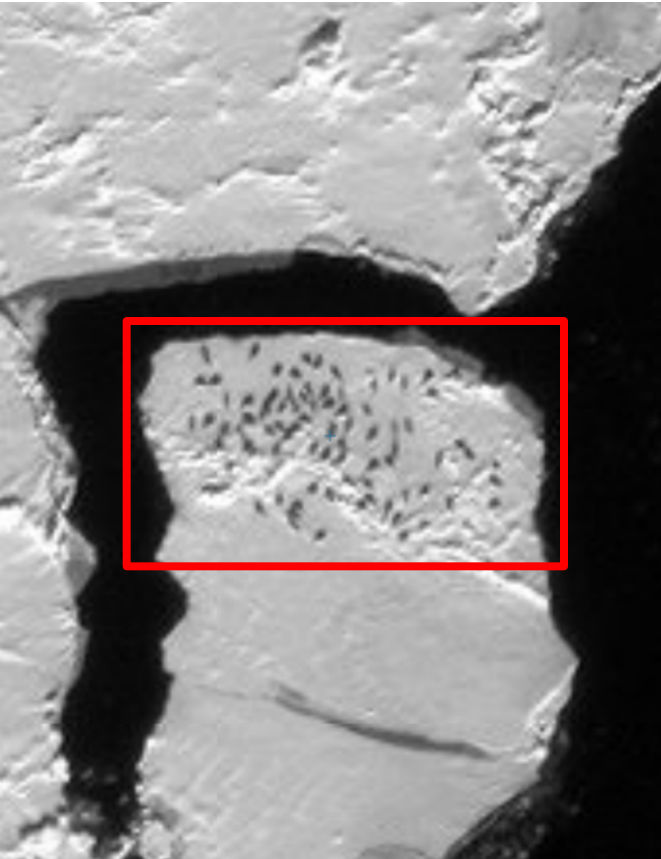
Ice mapping



Reports



Search for whelping grounds



GeoEye-1 2019-03-03 ©DigitalGlobe, 2019



2019-03-06: Andrey Solovyov, the participant of the project took part in the airplane flight over the White Sea in order to verify the coordinates of harp seals whelping grounds.



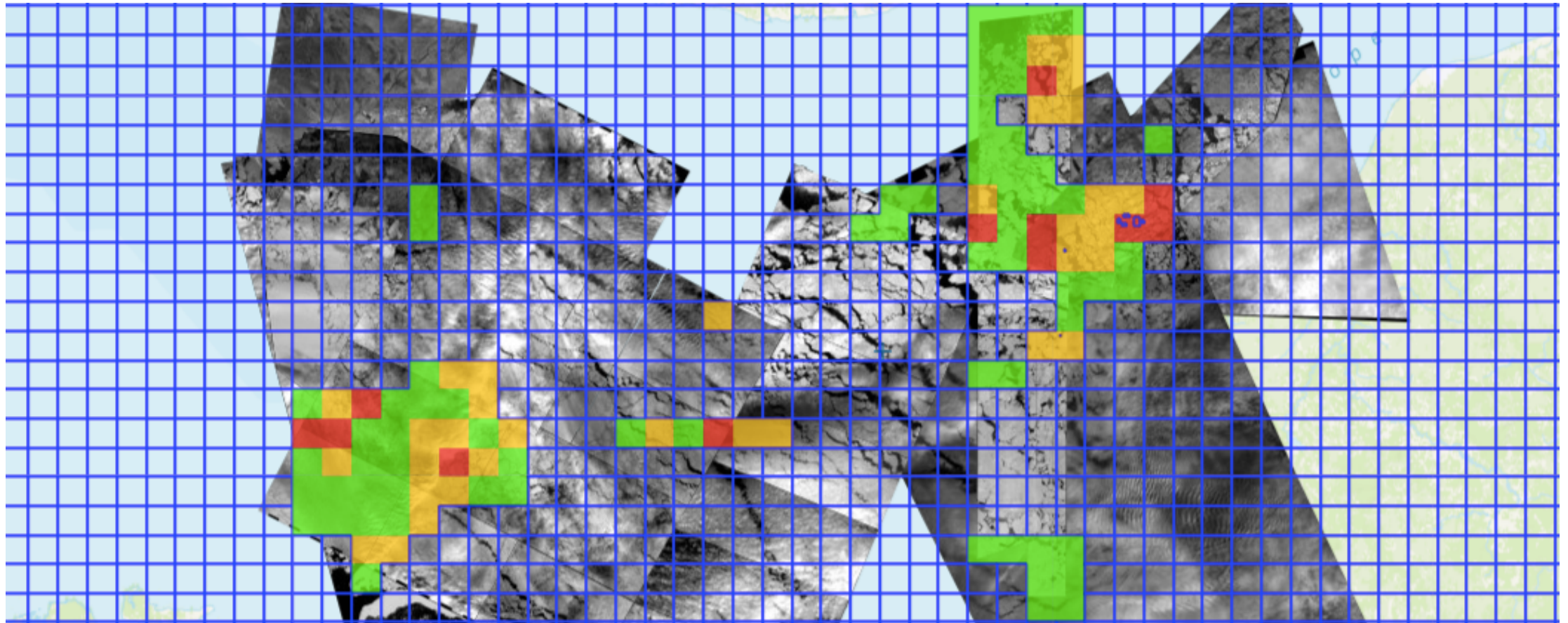
We thank our Partners!





Crowdsourcing imagery analysis

We invited everyone to participate in satellite data analysis for further training of the neural network:



No seals/signs



Seals/signs detected



Probably there are seals/signs

First
commercial
delivery

10
commercial
orders,
several with
government
support

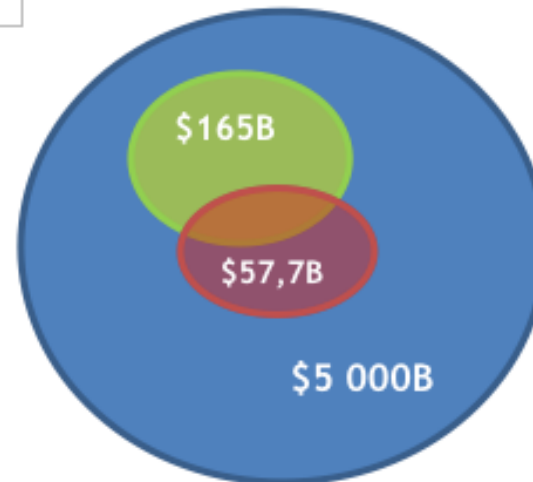


Looking for strong
partnership with
space industry and
satellites owners

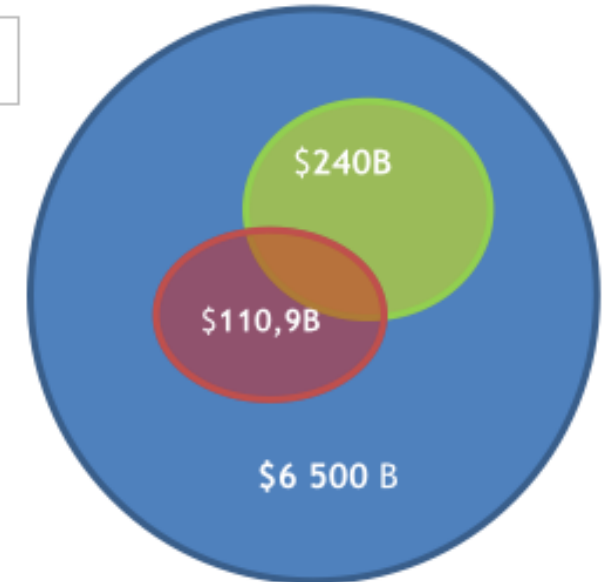


Global market

2017



2023



- Education Market
- Educational Technologies
- Educational Equipment Market

LoReTT technology developers — Vladimir and Olga Gershenzon, experts in the field of Earth remote sensing data reception and application.



Our experience:





B2C — Family
Edutainment

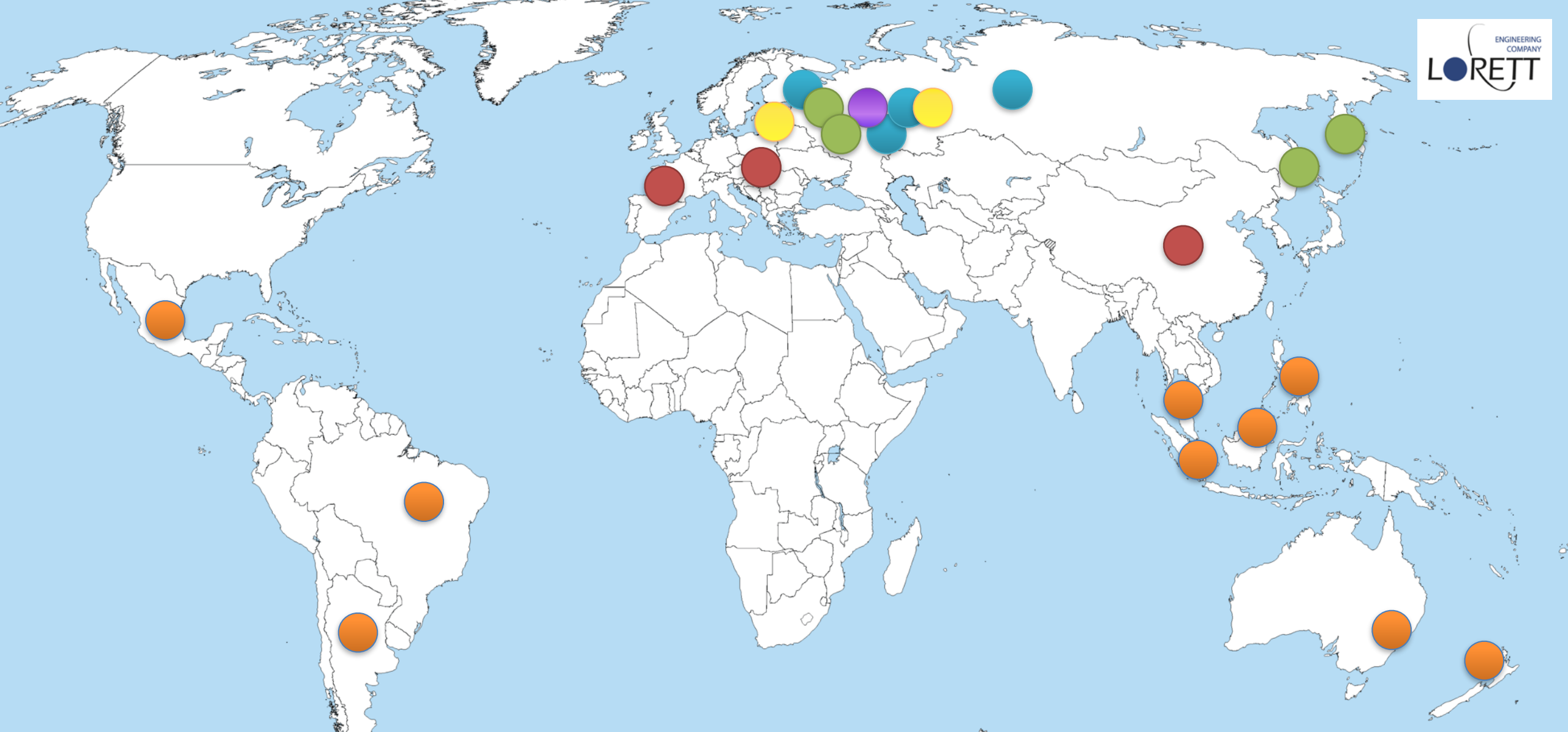



B2B — Private
schools and universities



B2G —
Governmental schools
and universities

Our advantage



 b2g: laboratories in children's industrial parks

 b2g: laboratories in universities

 b2b: (Korolyov)

 planned deliveries in Russia

 planned deliveries abroad (priority)

 planned deliveries abroad

Why invest in us/why work with us?

INNOVATION

Contact us:
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We are creating absolutely
breakthrough opportunity
for new generation and
therefore for players of
Space 4.0 era.