



SISMA

Space Innovation System
to Monitor Animals

Space Innovation System to Monitor Animals

A SPACE-BASED SOLUTION FOR SUSTAINABLE PASTORALISM

SISMA combines satellite tracking, Earth observation and other space systems to support herding in Russia. Satellites are crucial due to large territories and weak terrestrial communication networks. SISMA designs and develops easy, reliable and cost-effective data collection tools to provide reindeer observations, including habitat and conditions. When injected in the SISMA Data Factory, these data are transformed into actionable intelligence to support sustainable management tailored to the needs of each type of user.

ABOUT THE PROJECT

In 2016, the European Space Agency (ESA) and the French Space Agency (CNES) launched a challenge to qualify the potential for new markets in the field of livestock management, disease reduction, and sustainability of ecosystem services. This project resonated with Russian scientists working with pastoral herders and ES-PAS to track reindeer herds. Together, ES-PAS, CLS and their Russian partners began discussions about how to help the pastoral ecosystem to manage reindeer sustainably in Northern Russia.

During the SISMA feasibility study, conducted from 2017-2018, CLS and its partners designed a series of innovative space-based tools and a sustainable business model to help the pastoral ecosystem. Convinced by the potential market for this product in Russia, ESA and CNES pursued funding via the SISMA demonstration project (2019-2020), under which CLS and its partners develop space-based tools to facilitate the management of pastoral livestock to help stakeholders cope with the future.

USER BENEFITS

Herders Agricultural enterprises Natural reserves Nomads

Support herders and natural reserves in their daily activities.

Health officials Veterinarians

Integrate herders into the veterinary services and improve mechanisms for traceability, disease detection and risk management.

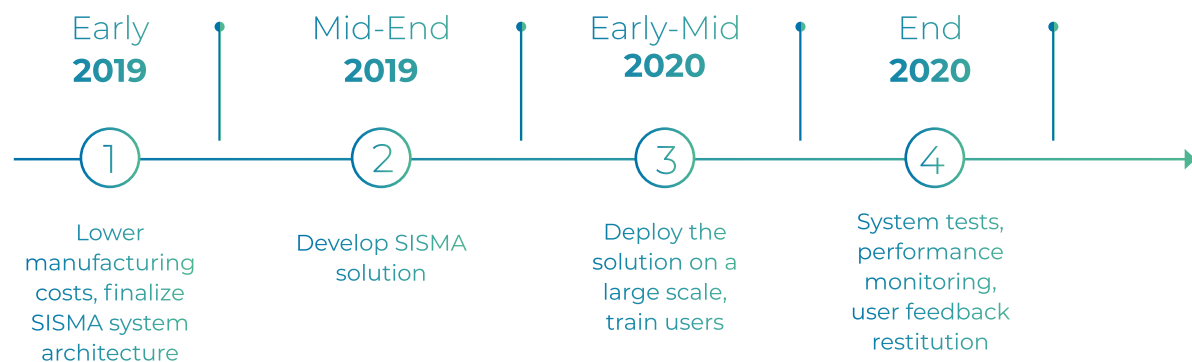
Government agencies

Helps government agencies manage commercial hunting, land availability and other environmental conditions that affect reindeer husbandry.

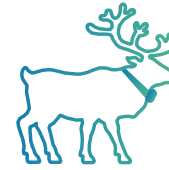
Scientists Consultancies

Assist scientists/consultancies as they develop a more productive ecosystem and replenish genetic stock.

PROJECT TIMELINE



SISMA solution



INTELLIGENT REINDEER COLLARS

SISMA develops low-cost, low-power, satellite-based animal collars adapted to wild and domestic reindeer living in the Arctic climate. These collars measure hourly animal positions, detect if the reindeer is walking, running or stationary, and transmit these data to the data factory.



REMOTE CONNECTIVITY

Several data management interfaces are available for remote workers. For herders, alerts can be received by phone. For health officials and herd managers, a satellite-linked tablet makes it possible to make declarations, report on animal inspections and visualize animal tracks & alerts.



SISMA provides the crucial data herders need to manage their herd remotely



SISMA DATA FACTORY

An inbound/outbound data factory to collect and process monitoring data, keep/share records, combine them with Earth Observation & regional information, and provide herd management data (statistics, declarations, reports, alerts) to the user ecosystem.



WEB PORTAL

Website to see where a herd is located, what they are doing, receive alerts, and herd and disease management data. Value-added Earth Observation products to characterize habitat are also available. Ideal for posting/sharing regional information that will contribute to efficient field management and policy decisions.

SISMA

The French and European Space Agencies support CLS and its partners to make the Space Innovation System to Monitor Animals become a reality for Russian herders, health officials and government management agencies.

200+
Reindeer wearing intelligent SISMA collars in 2020

10+
Core partners + associated partners

90+
satellites mobilized: GNSS (positioning), Argos/Kinéis (data collection), Earth Observation

30+
years experience with space-based systems



Historic operator of the Argos satellite system and certified Kinéis and Iridium reseller, CLS Group has more than 30 years' experience operating space systems and providing satellite services to biologists, fishermen, NGOs and governments to help protect the environment and manage resources sustainably.

ES-PAS, a local Russian partner, has built a reputation for excellence with biologists in Russia by designing robust Argos satellite tags to track wildlife and provide data about their behavior in Arctic and sub-Arctic conditions. ES-PAS has worked

hand-in-hand with reindeer herders in Yakutia, to help monitor herds remotely.

SIRS, a CLS subsidiary, has more than 30 years' experience producing geographical data using satellite-based or aerial observations to help local, national and international authorities with land management issues.

The SISMA project is supported by the French Space Agency, CNES, and the European Space Agency, ESA, within the framework of an ARTES application demonstration project.



@ SISMA@groupcls.com

www.cls.fr/en/sisma/

