

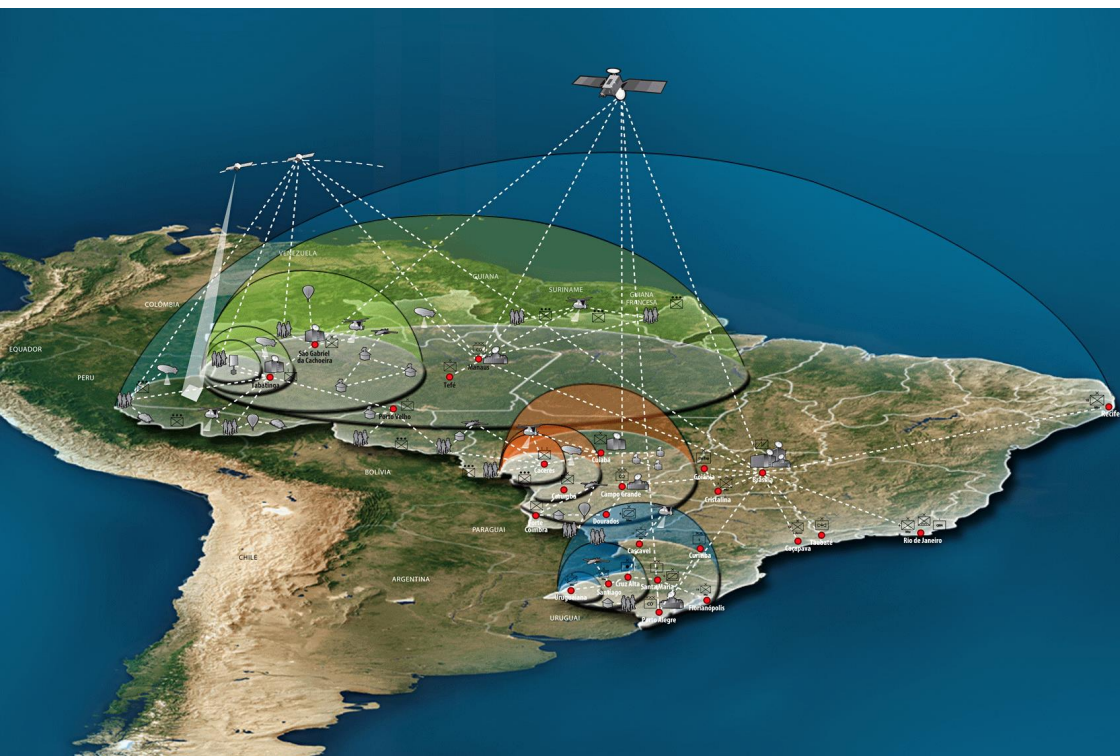


**SAAB**

# SISFRON

BORDER SURVEILLANCE WITH  
ELECTROMAGNETIC SENSORS

PROJECT OVERVIEW



From 2013 Strategic Defence Intelligence –  
Tue Nov 27 2012



Project Name: Army - SISFRON, Brazil  
Project Status: Awarded to Tepro consortium  
(Saab Medav Technologies subcontractor)  
Project Type: Parent  
Project Start Quarter: Q4 2012  
Project End Quarter: Undisclosed  
Project Value (USD): 404 Million total value  
Project Sector: C4ISR Electronics & IT  
Project Location: Brasilia, Brazil, South America



SISFRON (Sistema Integrado de Monitoramento de Fronteiras) is the Integrated Border Monitoring System being developed by the Brazilian Army. It is a network of surveillance radars, sensors, command and control communication systems, and unmanned aerial vehicles (UAVs), designed to enhance the protection of Brazil's borders over the period of ten years.

SISFRON's initial phase include the monitoring of approximately 1.978 kilometres of land border, contributing to regional security and fighting cross-border crimes.

The subsystems to be installed during this phase are under the responsibility of the Brazilian Western Military Command.

The Brazilian Army has signed a contract with Tepro consortium for the implementation of Phase I of the SISFRON programme.

Tepro consortium is made up by the companies Savis Tecnologia e Sistemas S/A and Bradar (formerly OrbiSat Industria e Aerolevantamento S/A), both controlled by Embraer Defesa e Seguranca.

Saab Medav Technologies GmbH is responsible for the COMINT and data information fusion part of the SISFRON programme.

# SUPPLYING THE COMPLETE CHAIN

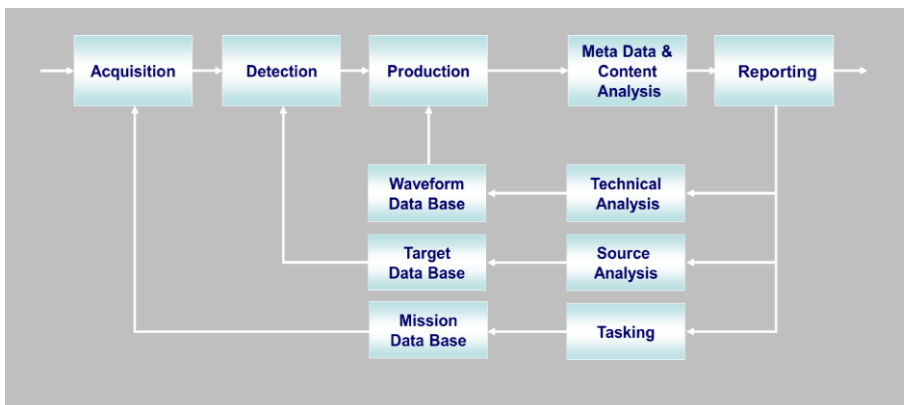
## FROM THE SENSOR TO THE ANALYSIS CENTRE

Medav has more than 30 years of experience in this application field. The technology range spans over the following fields: signal acquisition, processing, analysis and classification.

Medav offers the whole spectrum: from the antenna via the strategic oriented intelligence back office to the generation of results regarding threat detection in tactical scenarios.

## CAPABILITIES

- Automatic production of radio signals
- Super resolution direction finding and monitoring
- Localization of radio signals (using more than one sensor station)
- Advanced radio signal analysis for manual identification of unknown or modified radio signals
- Online detection, separation, and extraction of frequency Hopper systems.
- Information fusion of both interceptions and generated information into aggregated high level information
- Remote controlled sensors
- Reporting of all activities and results

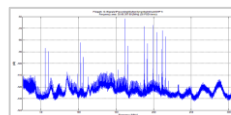


All systems are modular and scalable depending on user needs.

## COMINT CONCEPT IN SISFRON

COMINT SENSORS ARE LOCATED  
IN SPECIFIC AREAS ...

- Detection of radio signals
- Direction finding
- Geo-location
- Classification
- Demodulation
- Decoding
- Identifying emitters of interest
- Content production of radio signals
- Reporting to the Regional Centre of Monitoring

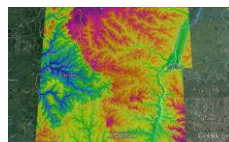


... using state-of-the art automation

## REGIONAL CENTRE OF MONITORING

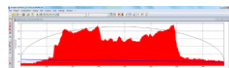
Unified collection from different sensors

- Generation of added value (auto & interactively)
  - Meta data processing
  - Content processing (audio, text, images, data)
  - Events and relations



### → Interim reporting

- Information analysis
- Event analysis
- Fusion

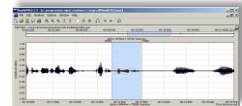
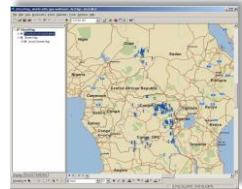


### → High level reporting

# INFORMATION FUSION CONCEPT

IFS – flexible, modular and scalable framework

- Information fusion to support different security applications
- Unique handling of information from different sensors
- Pattern recognition technology is applied to pre-process unstructured information
- Specialized tools support the analysts
- Organization of workflows in the intelligence back office
- Mission-oriented Research & Development is basis and source to upgrade the system in operation.



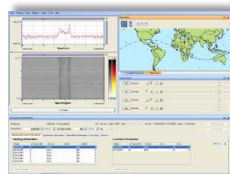
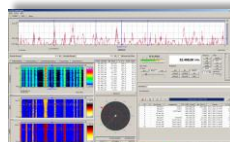
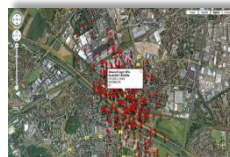
Features:

- Automated language classification
- Topic spotting
- Speech-to-text transcription
- Full text translation (automatic)
- Map import and export (satellite images etc.)
- Steganography analysis
- OCR (optical character recognition)



## SISFRON (COMINT) COMPRISES

- Fixed remote sensor stations with monitoring and direction finding (DF) capabilities
- Mobile remote stations with monitoring and direction finding capabilities
- Regional Centre of Monitoring (CRM) with sensor remote control, signal analysis, information fusion, and reporting capabilities
- Training centre



## **PRESS RELEASE**

### **SAAB MEDAV TECHNOLOGIES - SMT RECEIVES ORDER FOR BORDER SECURITY SENSORS**

SMT has received an order for the electromagnetic signal-sensor part of the Brazilian border security programme SISFRON. Deliveries will take place during 2013 to 2019. For SMT, this is one of the most important orders.

SISFRON is the integrated border monitoring system the Brazilian Army is developing for its western border, contributing to regional security and fighting cross-border crimes.

Stationary as well as mobile remote controlled sensor-stations with monitoring and direction-finding capabilities in the frequency ranges HF, VHF and UHF will be delivered and a regional centre for monitoring (ISTAR) and a training centre are included in the contract. Together with this project, technology transfer is provided, increasing the autonomy in the supply chain and creating jobs in high technology sectors in Brazil.

For this order, SMT is subcontractor to Savis Tecnologia e Sistemas S.A., a subsidiary of Embraer Defesa & Seguranca S.A., wholly-owned by Embraer S.A. selected by the Brazilian Army to implement the SISFRON Phase 1 Programme.

SMT specialises in the application of digital signal processing, pattern recognition and information technology. Special advantages of the SMT system are the software based architecture using SDIA® (Software Defined Intelligence Architecture) and SMT's capability to provide all parts of the system from the sensor to information fusion and reporting. The company was founded in 1982 and serves more than 50 customers globally with highly innovative and technologically leading solutions. SMT is part of the Saab group since 2012.

