

SatCen

ANNUAL REPORT 2020





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H.E. Ms Florence Party, French Minister of the Armed Forces at SatCen, 24 September 2020



Excma. Sra. Doña Margarita Robles Fernández at SatCen, 05 November 2020



Major General Michel Friedling, French Space Commander at SatCen, 17 September 2020



Rear Admiral Fabio Agostini (Italian Navy), Commander of Operation EUNAVFOR MED IRINI at Satcen, 01 July 2020



Visit of HR/VP Josep Borrell to the Centre on 24 February 2020



Visit of UME delegation to SatCen, 07 July 2020

Foreword by the Director



While approaching its 30th anniversary, the European Union Satellite Centre (SatCen) has profiled itself as a highly valuable EU autonomous operational asset in support of CFSP/CSDP, with a proven record of contributing to the four 'baskets' of the forthcoming Strategic Compass: Crisis management support through geospatial analysis is at the core of SatCen's mission. Its contribution to enhanced resilience is reflected in the lessons learned from its own operational resilience in crisis situations, as well as through its role in the Space Surveillance and Tracking (SST) and relevant geospatial analysis supporting resilience. Its contribution to strengthening EU partnerships is reflected in the EU mandated support SatCen provides to the UN, OSCE and OPCW. Capability development and efforts to stay at the cutting edge of relevant technological developments has been a continuous priority for SatCen, strongly linked with its autonomous operational mission.

Under the political guidance and supervision of the 27 EU Member States and the operational direction of the High Representative of the EU for Foreign Affairs and Security Policy / Vice-President of the EU Commission (HR/VP), the SatCen supports the decision making and actions of the Union (including valuable support to EU missions and operations) by exploiting space assets and other relevant data, through comprehensive and actionable geospatial

intelligence analysis. Highly skilled and multidisciplinary teams analyse heterogeneous data at multiple classification levels in a secure environment.

The Centre's fields of activity are broad and inclusive, covering all features, activities and phenomena related to security that can be analysed and monitored from space (security from space). These cover military capabilities, humanitarian aid, support to evacuation operations, monitoring of weapons of mass destruction, critical infrastructures and security related to climate change, to name just a few. Complementing this, the SatCen is the Space Surveillance and Tracking (SST) Front Desk, enabling the monitoring of the situation in space (security of space), in cooperation with EU Member States. These two security dimensions are reinforced by operational synergies, as reflected by the delivery of relevant analytical products.

2020 was one of the most challenging years in SatCen's history. In a context framed by the COVID-19 pandemic and Brexit, SatCen had to cope with an increasingly growing and differentiated user demand for geospatial support services, while at the same time adapting its processes to harvest the best of the continuously evolving 'New Space' industry, characterised by significant developments in the availability of data and advanced analysis techniques and tools.

From early 2020, as soon as the potential impact of COVID-19 became apparent, the Centre engaged in a comprehensive effort directed at ensuring the health and safety of all staff, while continuing to fulfil its essential mission in a context of limitations on ground mobility and activity increasing the demand for geospatial analysis services.

The Centre was successful in maintaining a continuous output of reliable geospatial analysis products, as well as an uninterrupted supply of all other services in the field of space and security, to which



SatCen is mandated to provide essential support for its users and partners.

In addition to this major impact from the ongoing pandemic, SatCen also had to brace for Brexit and the need to find a contractual agreement with the British staff that had to leave SatCen by end of the Brexit transition period (31 December 2020) due to security regulations. This political development posed another major challenge to SatCen operational effectiveness, since UK staff were embedded in core operational functions and were also represented in the Centre's management level.

Thanks to the high professionalism, versatility and dedication of SatCen staff, as well as to the contingency measures indicated above, the Centre demonstrated exceptional resilience and was able to adapt to the new situation and to maintain an output similar to the record levels of the year before.

The decrease in classified activity due to the strict confinement in the first weeks of the pandemic was compensated by an increase in on-site presence and associated classified production in the second half of 2020, with unclassified operational activity being performed through teleworking at scale. All

this has shown that SatCen is a valuable autonomous capability, fully able to fulfil its geospatial support mission as well as to provide comprehensive services in the field of space and security, even under the most challenging conditions.

SatCen's operational activity in 2020 also responded to a number of key recommendations made by Member States and the HR/VP: Firstly, the support with geospatial intelligence to EU missions and operations increased more than five times compared to the year before (from a 3% share of total production in 2019 to 17% in 2020).

Secondly, SatCen has continued to enhance its connectivity with the intelligence community at EU and Member State levels through enhanced secure technical communications and seamless, adaptive responses to prioritised tasking in a pandemic context.

Thirdly, SatCen's increased use of EU satellite data providers continued in 2020, sustaining the growth trend of recent years.

To maintain its edge in terms of, expertise and efficiency, even under the constraints of the current

health situation, SatCen has kept investing heavily in the continuous professional training of its staff, as well as in maintaining a leading technological edge, supporting highly efficient processes and resulting services. This includes, but is not limited to, uptake of new IT tools and analysis procedures like artificial intelligence and big data handling, continuously adjusting its contractual base with data suppliers and other contributors, as well as further investments in the secure working environment and secured interlinks with its user community.

SatCen's efforts to maximise synergies and complementarities with other EU activities in the field of security, defence and space have been reflected in the highly effective and appreciated cooperation with the Commission, in particular through SatCen's role in the Copernicus Security Services (both in support to External Action and to Frontex) and its function as Front Desk to the EU Space Surveillance and Tracking Support Framework (EU SST). Furthermore, the involvement in R&I activities, mainly funded through the Horizon 2020 programme or as part of close and often multi-annual projects, as well as through cooperation with partners like the EDA, ESA or other actors in the common field of interest, have further enhanced these synergies, and thus supported SatCen's core operational activity.

At the policy level, the debate in the SatCen Board on the future of the Centre continued in 2020 on the basis of the recommendations contained in the HR/VP Report on SatCen endorsed by the Council, and based on the input of the entire set of SatCen stakeholders, including the EEAS user community and the Commission.

This debate has also been taking place on the basis of the 'Strategic Goals and Implementation Options' document provided by SatCen as a basis

for analysis and discussion. The series of debates at SatCen Board level has led to the refinement (and adaptation to the pandemic context) of the implementation options, in preparation for future decisions. Furthermore, SatCen has also contributed to the ongoing Strategic Compass debate, both through its specific input to the Threat Analysis and through participation in relevant round tables and seminars.

With all its complexity and unforeseen circumstances, 2020 also saw an increased political level interest in the Centre's unique role and contribution to EU strategic autonomy. This was also reflected by a number of high-level visits, such as those of the HR/VP Josep Borrell; H.E. Florence Parly, French Minister of the Armed Forces; H.E. Margarita Robles Fernández, Spanish Defence Minister; H.E. Karoline Edtstadler, Federal Minister of Austria for the EU and Constitution; as well as of other high-level officials from France, Italy, Spain, Portugal, Romania, Croatia, Malta, Hungary, EU representatives and mission commanders.

Finally, I would like to express my sincere appreciation to the remarkable dedication and professionalism of our staff, and just as much to all our key stakeholders, the Member State representatives, as well as to our partners for their investment of trust and support, as well as for the close and reliable collaboration throughout an unusually challenging, but also rewarding year.

Sincerely,
Ambassador Sorin Ducaru
SatCen Director



*SatCen Headquarters in Torrejón de Ardoz, Madrid, March 2021
Construction site of the SatCen building extension, approved by the SatCen Board in 2018,
started in December 2020 and scheduled to be completed in 2022.*

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“ The SatCen plays a fundamental role in the decision-making under the Common Security and Defence Policy, and actions of our 17 civilian and military missions and operations around the world. From Torrejón de Ardoz, it offers geostrategic analysis of intelligence for both the EU’s institutions and its Member States. ”

HR/VP **Josep Borrell** at SatCen, 24 February 2020

1 FULFILLING A CRITICAL MISSION IN CHALLENGING TIMES

SatCen was founded by the EU Member States as an agency under the Common Security and Defence Policy, creating an autonomous capability to support EU decision making and actions in CFSP and CSDP. The Centre is tasked with providing products and services, in particular from the exploitation of imagery data derived from space assets, as well as collateral data.

In this function, SatCen is a unique operational asset in the field of space and security, serving a broad spectrum of users from high-level decision-makers, like the Council and the High Representative of the Union for Foreign Affairs and Security Policy and Vice President of the Commission (HR/VP), the crisis management and situational awareness structures of

the European External Action Service (EEAS), as well as EU missions and operations. Within the EEAS, main users are the EU Military Staff (EUMS), the Intelligence and Situation Centre (INTCEN), the Civilian Planning and Conduct Capability (CPCC) and the Military Planning and Conduct Capability (MPCC).

Additionally, the Centre supports EU Member States, the European Commission, as well as EU agencies and international organisations with its analysis services in the field of space and security, covering geospatial analysis products but also supporting other Union activities such as Space Surveillance and Tracking (SST), border management, irregular migration, and the area of freedom, security and justice.

SatCen's Mission (Art. 2 of the Council Decision)

1. *SatCen supports the decision making and actions of the Union in the field of the CFSP and in particular the CSDP, including European Union crisis management missions and operations, by providing, at the request of the Council or the HR, products and services resulting from the exploitation of relevant space assets and collateral data, including satellite and aerial imagery, and related services.*
2. *In the framework of SatCen's mission, the HR shall also, upon request and if the capacity of SatCen so allows and without prejudice to its core tasks set out in paragraph 1, direct SatCen to provide products or services to: a Member State, the European External Action Service (EEAS), the third States having agreed to the provisions set out in the Annex on the association with SatCen's activities; if the request is relevant in the field of the CFSP, in particular of the CSDP, international organisations such as the United Nations, the Organisation for Security and Cooperation in Europe (OSCE) and the North Atlantic Treaty Organisation (NATO).*
3. *SatCen may also, without prejudice to its core tasks set out in paragraph 1, cooperate with the Commission and with Union agencies, bodies or Member States, with a view of maximising synergies and complementarity with other Union activities that have a bearing on SatCen and where SatCen's activities are relevant to those Union activities.*

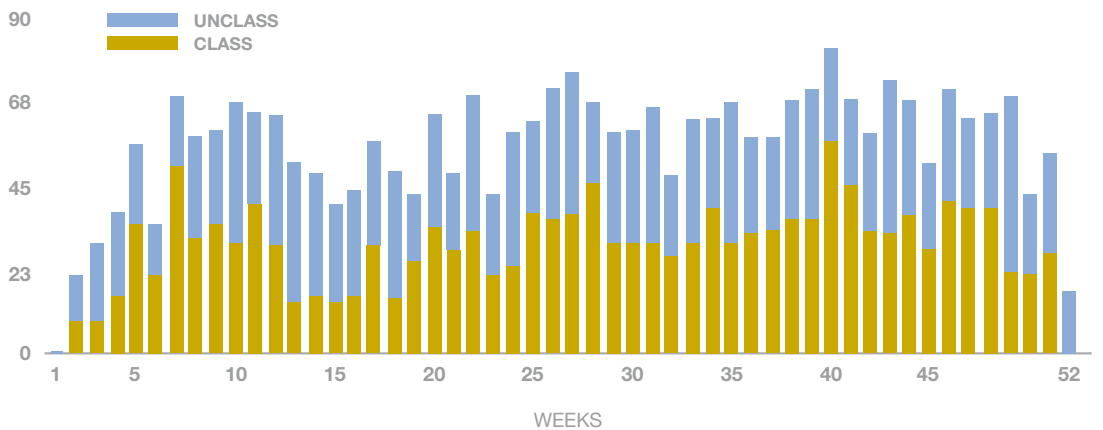
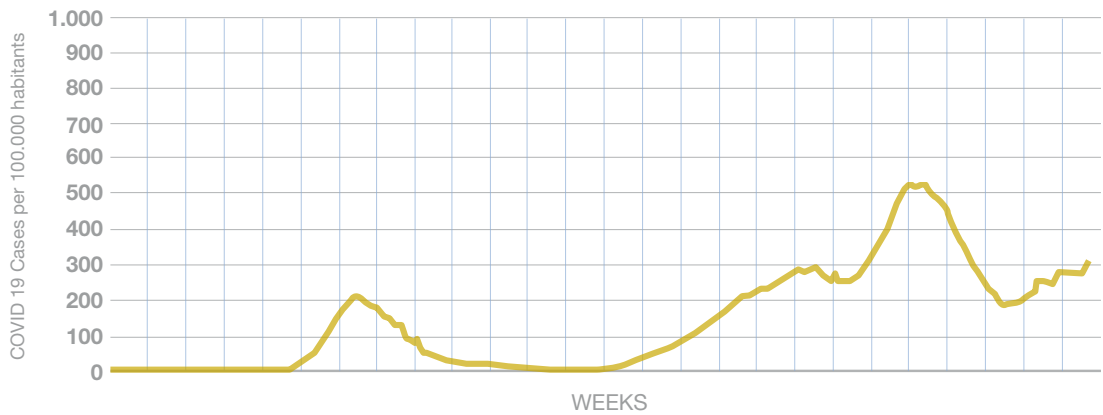
Read more about the
Council Decision/2014/401/CFSP

1.1 Maintaining High Output despite COVID-19 Pandemic and Brexit

The outbreak of the Coronavirus Pandemic was the decisive mark of 2020. All operational, administrative and development activities had to be adjusted to this radically different operational environment. The SatGen, based on its general high-level of technical readiness, but above all due to its exceptionally professional and dedicated staff, mastered this unique challenge in a remarkably successful

manner, while assuring both the safety of its staff and an operational activity in 2020 at the level of the pre-pandemic year 2019. The charts below reflect the adaptation of SatGen’s operational activity (both classified and unclassified) to the pandemic context, demonstrating its capacity to ‘absorb’ the second pandemic wave, without significant impact upon its operational output.

Comparative visualization of COVID-19 cases in Spain, production output in 2020



SatCen's management took several initiatives and decisions, in accordance with its duty of care for SatCen staff and the maximisation of operational continuity. By quickly adapting to the new conditions, the Centre demonstrated a high level of operational resilience and its full capacity to deliver on its important mission.

The continuously high level of task requests, coupled with specific user feedback, demonstrated the special value of geospatial support services during the pandemic, which had a limiting impact on ground observations and local mobility. SatCen's activity thus highlighted the importance of autonomous access to space data and professional earth observation analysis for the EU and other users during crisis periods.

In line with relevant government decisions in Spain, only essential staff continued to work at the SatCen premises to ensure urgent prioritised classified activity, based on prioritisation agreed among SatCen, EEAS and especially the Single Intelligence Analysis Capacity (SIAC). Operational contacts with the Copernicus Service in Support to EU External Action (SEA), Frontex, the Organization for Security and Co-operation in Europe (OSCE) and the Organisation for the Prohibition of Chemical Weapons (OPCW) were upheld and functioned well, allowing continuity in the delivery of products and services. The link with the EU SST Consortium and other users also worked well.

In this crisis, it is highly relevant to note the fact that even in the difficult circumstances of the pandemic, SatCen has made a special effort to respond to the increased needs for support to EU operations and missions. The Centre was capable to rapidly align with the needs of the recently launched operation IRINI and its increasing demand.

Due to these contingency and crisis response measures, SatCen was able to limit, during the peak of the pandemic waves, the impact on classified production, which could be only performed on-site, while unclassified production and services, except for training, could be maintained at levels comparable to normal business and even above. Only on-site training activities and the periodic Expert User Forum - relying on the physical presence of the national and EU representatives due to the exchange of classified information - were delayed.

The impact on implementing the 2020 work programme has thus been limited, mostly due to SatCen's extremely professional and dedicated staff, including the flexible use of their own IT and communications resources, which turned out to be crucial in coping positively with the situation.

Additionally, the Centre had to cope with the impact of Brexit. With 2020 marking the UK's departure from the EU, the country ceased being represented at the SatCen Board, with severe effects on the Centre's budget and with the UK staff members having to discontinue their duties. The implications were extensively discussed by the Board, and mitigation measures were implemented to limit the impact on the Centre's high operational tempo.

As key learning from 2020, the robustness, resilience and flexibility of critical resources, from staff to essential infrastructure, will have to be assessed to further minimise the operational impact of possible negative effects. For this essential exercise, different types of events (not only pandemics) will have to be considered, with appropriate risk mitigation actions being identified.



**Read
more**

*Meeting of the SatCen Director with H.E. Arancha González Laya, Spanish Minister for Foreign Affairs, 29 June 2020
Spain offers excellent host nation support for SatCen's growing operational activity*

1.2 Firmly Embedded in Political Framework

SatCen activities take place within a clearly defined policy framework and are strongly interlinked with key stakeholders, in particular the Member States and EU institutions. The political environment is primarily set by the 2016 EU Global Strategy, which establishes three strategic priorities for EU security and defence: responding to external conflicts and crises; building the capacities of partners; and, protecting the Union and its citizens. The concept of strategic autonomy as well as the link between internal and external security are also addressed by this strategy.

In 2020, the Council repeatedly confirmed an increased level of EU ambition in the security, defence and space domains. The Council also clearly stated

its support for close cooperation in the fields of border security, maritime security, irregular migration and human trafficking. The Member States promoted EU civil-military intelligence-based situational awareness and encouraged the cooperation between SIAC and SatCen. Recently, the link between environmental degradation, climate change and security was also explicitly addressed by the Council.

Furthermore, based on its unique operational role, SatCen has also been contributing to the policy debate related to the EU Strategic Compass, as also reflected by the EEAS, highlighting SatCen's involvement in the process while providing both illustrative and informative images for the Threat Analysis.¹

1. https://eeas.europa.eu/sites/eeas/files/2020_11_20_memo_questions_and_answers_-_threat_analysis_-_copy.pdf



Visit of H.E. Ms Florence Parly, French Minister of the Armed Forces, 24 September 2020

At the same time, the EU is preparing for far-reaching goals in its new space programme, also providing continuous funding to SatCen's activities, through the Copernicus programme and the EU SST activities. The Centre's role as entrusted entity for the Copernicus Service in Support to EU External Action (SEA), as delegated by the Commission since 2016, is a special example of strong synergies in the field of space and security. Copernicus SEA provides geospatial intelligence based on the analysis of satellite imagery to assist the EU and its Member States in their operations and promote their initiatives and projects outside the territory of

EU Member States for European and global security. It mainly provides services in the following areas: support to humanitarian aid; rule of law; stability and resilience for development; security of EU citizens abroad; crisis, conflict and critical assets; and, cultural heritage.

In 2020, the EU also reached a consensus on the new multi-annual financial framework (MFF) funding cycle, providing many opportunities for SatCen to deepen its role as a centre of competence for space and security, contributing to several research projects in this field.



“ The European Union Satellite Centre that I visited this morning is a pillar of our strategic autonomy. ”

Florence Parly,
French Minister of the Armed Forces,
Visit to SatGen, 24 September 2020



Read more

Visit of the HR/VP Josep Borrell to SatCen, 24 February 2020

SatCen is an operational agency supporting the EU's ambition for pooling and sharing of its expertise and services as part of a sensitive and high profile mission. Each Member State, contributing with a share of the SatCen budget, receives the full output of products and services, thus benefitting from the

Centre's operational work and from the IT tools it develops in-house.

Along this line, the Commission also supports various contributions made by SatCen to EU policy fields related to the security domain.





“Spain (...) is proud of the work carried out by the SatCen, essential for the activities performed in many areas of the EU. ”

Excma. Sra. Doña Margarita Robles Fernández,
Spanish Defence Minister,
visit to SatCen 05 November 2020



“With its 28 years of experience, SatCen has clearly developed into a unique operational tool for EU external action and for its Member States. It is today an invaluable asset in the field of crisis management and security, in support of the EU and its citizens.”

H.E. Karoline Edtstadler,
Federal Minister of Austria for the EU and Constitution,
visit to SatCen 14 February 2020



Director Sorin Ducaru addresses the European Parliament via videoconference, 29 October 2020

The uptake of SatCen products and services by CSDP missions and operations increased remarkably in 2020. The share of SatCen production in support of EU operational activities has reached new levels and effectively multiplied in 2020, based on several dedicated support agreements.

SatCen performs its mission in especially close cooperation with the crisis management structures of the EEAS under the operational direction of the HR/VP and reported periodically to the Political and Security Committee (PSC). The trustful and effective links to these partners on the policy level, as much as on the operational level, are an important foundation for the effectiveness of the Centre's services.

The cooperation with intelligence entities in the EU and the Member States further intensified, supported by better IT interlinking through the EU OPS WAN secure connection. This especially improved the already close collaboration with SIAC intelligence partners.

SatCen's increasing role and relevance for the EU and its Member States was reflected in 2020 by a number of very important high level visits, such as those of the HR/VP Josep Borrell, H.E. Florence Parly, French Minister of the Armed Forces, Margarita Robles Fernández, Spanish Defence Minister, H.E. Karoline Edtstadler, Federal Minister of Austria for the EU and Constitution as well as other high officials from France, Italy, Spain, Portugal, Romania, Croatia, Malta, Hungary, EU representatives and mission commanders.

At the same time, the SatCen Director and management team were constantly engaged in dialogue with Member States and EU officials through a small number of visits and a large number of online contacts. A novel engagement was that with European Parliament representatives, which offered the possibility for a better knowledge of SatCen's relevance as a unique autonomous asset for the EU in support of EU decision making and action.

“ The European Parliament notes the important work conducted by EU SatCen and underlines that the Union must have adequate resources in the fields of space imagery and intelligence-gathering; stresses that EU SatCen should benefit from structural Union funding to be able to maintain its contributions to the Union’s actions, notably in order to provide high resolution satellite imaging in support of CSDP missions and operations. ”

The European Parliament, Annual Report on the CSDP 2020



Meeting of the SatCen Director with Nathalie Loiseau, Member of the European Parliament and Chair of the Sub-Committee on Security and Defence (SEDE), October 2020

“ The European Parliament notes the growing importance of space security and satellites; stresses the importance of the European Union Satellite Centre and commissions the agency to analyse and provide a report regarding the safety and/or vulnerabilities of the EU and Member-State satellites to space debris, cyberattack and direct missile attack. ”

The European Parliament, Annual Report on the CSDP 2020



Visit of General Romeo-Cristian Bizadea, Deputy Director of the Romanian Intelligence Service and Romanian delegation on 24 January 2020

To further enhance these operational ties and to better tailor its products to evolving needs, SatGen continues to invest in a thorough understanding of its users' needs and requirements through regular exchanges, visits and dedicated expert meetings.

The Centre has continuously engaged with Member States and other stakeholders, up to the level of

the PSC, through regular briefings, Board meetings, Technical Working Group / Expert User Forum, as well as various bilateral meetings and other events. Many of these meetings and discussions have taken place in virtual format since the onset of the pandemic in spring 2020.



Engaging with Member States. Online Board Meeting 02 May 2020



Visit of Gen. B. Luca Baione and Ten. Col. Alessandro D'Annibale of the Italian Air Force on 13 January 2020

The Centre, jointly with the Member States and the EEAS, is actively engaged in further enhancing its capabilities for the benefit of its users. This is facilitated by the ongoing “SatCen Tomorrow” process, which is building on the HR report on the functioning of the SatCen endorsed by the Council on 13 July 2020 and various Board decisions, to be followed

by a Board meeting at ministerial level, chaired by the HR, which is planned for 2021.

The Centre has developed into a valued user-oriented organisation, recognised as a dual-use, civil-military reference provider of state-of-the-art services. In line with key objectives, SatCen aims:

To be the comprehensive provider of state-of-the-art services based on space assets, in support of CFSP/CSDP and relevant EU space and security policies and activities, maximizing synergies with relevant EU and MS bodies, while staying at the cutting edge of technological development.

SatCen also progressed in contributing to Space Situational Awareness - SST (security in space) by supporting this service in which seven Member States (the UK left the consortium due to Brexit

at the end of 2020) share capabilities to preserve space assets and avoid damage if these assets re-enter the Earth’s atmosphere.



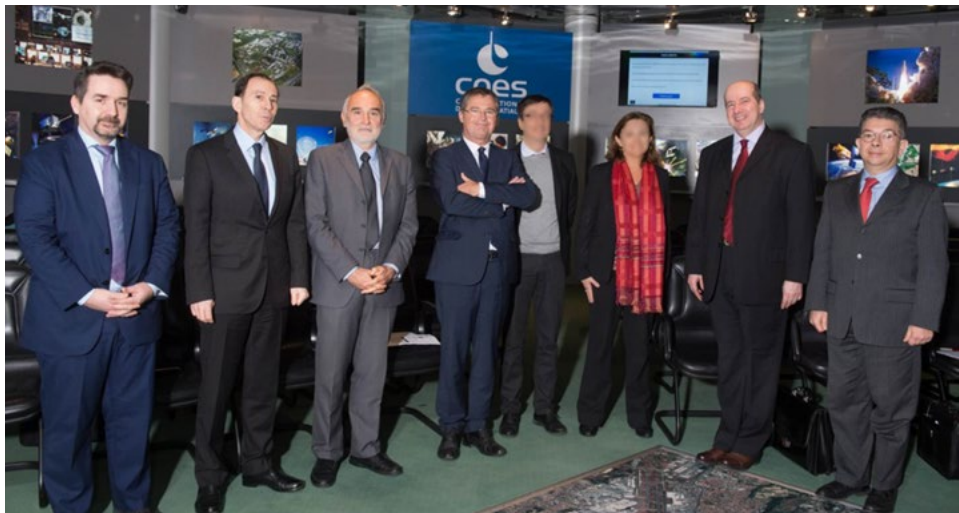
Read more

Visit of Rear Admiral Jean-Michel Martinet, Deputy Op. Commander EUNAVFOR Med SOPHIA, 28 February 2020

The Centre continues to face fast and disruptive change factors, which are placing it at a crucial inflection point in its evolution. These factors include the increased level of ambition of the EU for space and security, the fast-growing trend of user demand and the significant technological developments in Earth observation (EO) services and associated data processing technology.

The field of EO is constantly evolving and is currently in a particularly dynamic phase. There are parallel developments of new EO systems leading to rapidly improved data availability, supported by readi-

ly available large amounts of open data, as well as new services and applications boosted by technological progress in the field of software tools based on artificial intelligence and big data techniques. At the same time, the most remarkable trend in SatCen operational requirements has been user demand for speed of delivery and high reactivity. In this context, the constant contact and engagement with the national research & innovation entities, as well as with relevant European industry representatives offers the opportunity to closely follow the key developments in the space and security domains.



Visit of SatCen Delegation to CNES-Toulouse and Airbus Satellites, 28 January 2020



Visit of Major General Michel Friedling, French Space Commander, 17 September 2020

Whilst navigating the COVID-19 pandemic, SatCen has been able to participate in and host various events, both in person (pre-pandemic), as well as online and through different virtual formats. Notable events include, but are not limited to, the EU Annual

Space Conference, the EC Workshop and the Next GEOSS. Adapting to the new context, SatCen also hosted a variety of virtual events such as the 2nd SST Webinar and the Digital Twin Earth for Security side event during the ESA Phi-week 2020.



Expert session at the 12th European Space Conference in January 2020, organised by SatCen



HR/VP Josep Borrell receiving operational briefing at SatCen, 24 February 2020

1.3 Preparing for the Future

SatCen needs to keep abreast of its evolving user requirements. It is therefore paramount that the Centre continues to develop its capabilities in order to fulfil future service-needs, supporting the EU's strategic autonomy and credibility in its space-based security actions. In this context, the Report on the Functioning of the EU Satellite Centre, submitted by the High Representative in October 2019, was endorsed by the Council in July 2020².

The Report, while recognising that SatCen “has performed well and achieved significant efficiency gains”, highlights that “several issues hindered the SatCen from further developing its capability, the root cause being in most cases insufficient long-term structural funding”.

It recommends that the SatCen mission “should be pursued and reinforced to guarantee the highest level of quality and European autonomy in the assessment of internal and external threats”. It

2. Outcome of the Council Meeting 13JUL2020, SatCen endorsements 9459/20

proposes lines of action to enhance the uptake of SatCen products and services by CSDP missions and operations, to improve the acquisition of European imagery in particular through access to governmental imagery, and to develop a classified platform.

With the same aim, the report invites the enhancement of cooperation with entities at EU and Member States level to expand inter-agency cooperation, while further exploiting synergies with the EU space programme covering relevant EU policies (e.g. EU Maritime Security Strategy, internal security, etc.).

Concerning funding, the report advocates that SatCen *“should benefit from sustained resources (investment, financial capability, staff, etc.), addressing its long-term structural and evolution needs”*. In order to provide such sustained funding, stakeholders should *“address long-term structural budget needs of the SatCen, the EEAS, together with the Member States and the Commission, should explore the feasibility of contributions from: the CFSP or EU general budgets, voluntary contributions from Member States”*.

Given the growing relevance of SatCen products

and services in the indicated context, the Centre looks forward to political decisions shaping the level of ambition and pace of SatCen’s evolution, supported by long-term commitment to a sustainable resourcing framework.

The Council invited the HR/VP to prepare within one year, in close cooperation with the Member States and the SatCen, a forward-looking document implementing the recommendations of the HR Report. This document will have to take duly into account the set of conclusions/recommendations endorsed by the PSC in July 2018, the outcome of the ongoing discussion on “SatCen Tomorrow – Strategic goals and implementation options” and the Joint PMG/CivCom Recommendations. It could also include proposals to amend the Council Decision, if necessary.

To support the HR/VP prepare these proposals and the forward-looking document, as well as to ensure appropriate consultation, an ad hoc working group of the SatCen Board was established and met frequently during 2020, while also regularly reporting to the SatCen Board.



Visit of H.E. João Mira Gomes, Ambassador of Portugal on 19 June 2020



Visit of Lieutenant General Luis Manuel Martinez Meijide, Chief of the Spanish Military Emergency Unity (UME) on 07 July 2020



Visit of H.E. Karoline Edtstadler, Federal Minister of Austria for the EU and Constitution, 14 February 2020



Visit of Mr Pascal Savouret, Executive Director of the European Fisheries Control Agency on 03 March 2020



Visit of H.E. Ambassador Giovanni Xuereb (Malta) and H.E. Ambassador Nives Malenica (Croatia) on 15 July 2020



Visit of H. E. László, Ambassador of Hungary in Spain on 16 July 2020



Visit of Elena Gomez Castri, Director General for Defence Policy, Spanish MoD and Fidel Sendagorta, Director General for Foreign and Security Policy, Spanish MFA, 22 September 2020



Visit of Dr Paulo Lourenço, Director of the Directorate General of Defense Policy, Portugal on 31 August 2020



Copernicus Service in Support to EU External Action presented by Alessandra Ussorio, Responsible for Copernicus SEA Service, 31 January 2020

2 INTENSE OPERATIONAL ENGAGEMENT

2.1 An Exceptionally Challenging Year

The provision of geospatial and imagery intelligence was decisively marked by the 2020 pandemic. All analysis processes had to be radically re-designed to adjust to the ongoing crisis scenario. Approximately half of the Centre's annual production is classified and can therefore not be performed remotely from outside the SatCen local classified network, thus preventing many analysts from being able to work from home. However, the Centre managed to very quickly implement a business continuity plan

that guaranteed a steady output of classified tasking, while at the same time fully ensuring the health and safety of its staff.

Especially noteworthy was the significant increase in support to missions and operations, mainly due to services provided to EUNAVFOR IRINI. This new level of operational support could be generated while maintaining undiminished services to SIAC and EEAS users.

Overview of SatCen Support to Missions and Operations

Responsible Institution: **European Union**
Operation EUNAVFOR MED SOPHIA (Mediterranean)
Operation EUNAVFOR MED IRINI (Mediterranean)
EUNAVFOR ATALANTA (Horn of Africa)
EUMM Georgia (Georgia)

Responsible Institution: **OSCE**
SMM Ukraine (Ukraine)

Responsible Institution: **UN/OPCW**
OPCW (Syria)

Responsible Institution: **UN**
UNSMIL (Libya)
MINURSO (Western Sahara)

Furthermore, 2020 saw a full continuation of the Copernicus SEA services, as well as a significant increase in our production for Frontex in support of the fight against illegal migration and cross-border crime.

In parallel, and with some financial support from the Foreign Policy Instrument (FPI), SatCen managed to continue its output for the OSCE Special Monitoring

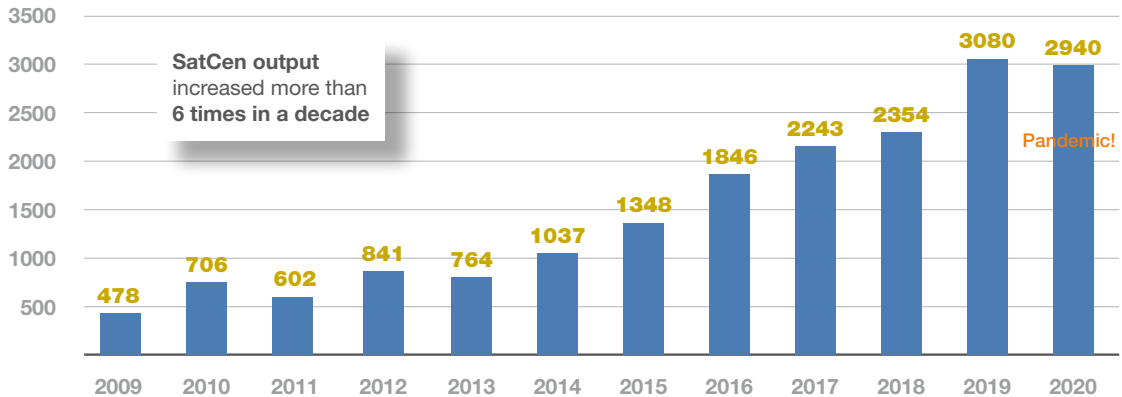
Mission in Ukraine, as well as its services for OPCW, and also started a support service to the UN Support Mission in Libya (UNSMIL).

All these changes became possible due to a major re-shifting of internal processes and further optimisation of the production chain, with various internal developments geared towards the increase of efficiencies and production performance.

2.2 Production Highlights in 2020

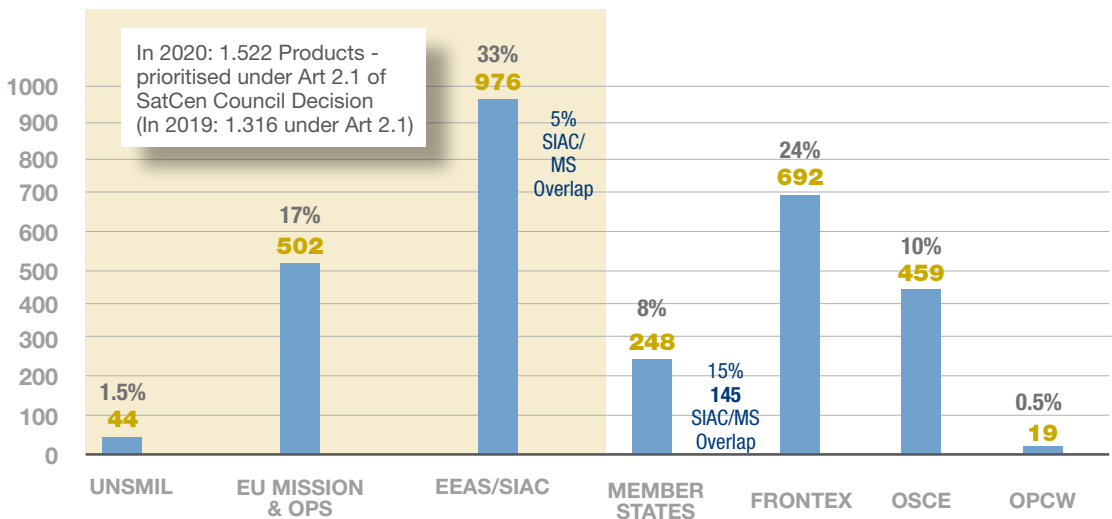
During 2020, SatCen delivered a total of 2,940 products, thus maintaining a similar level of output to the previous year, despite severe constraints stemming from the ongoing COVID-19 pandemic.

Annual Output of Geospatial Intelligence Products 2009 - 2020

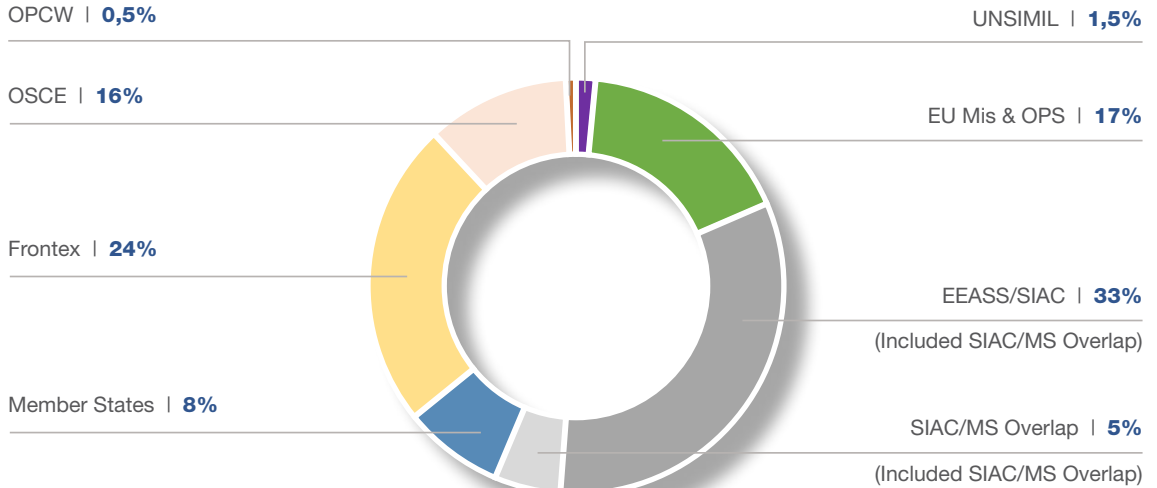


The EEAS/SIAC, EU missions and operations (in particular Operation EUNAVFOR IRINI), Frontex, the OSCE, and the EU Member States were the main users.

Production Breakdown per Main Users in 2020



2020 Production Share

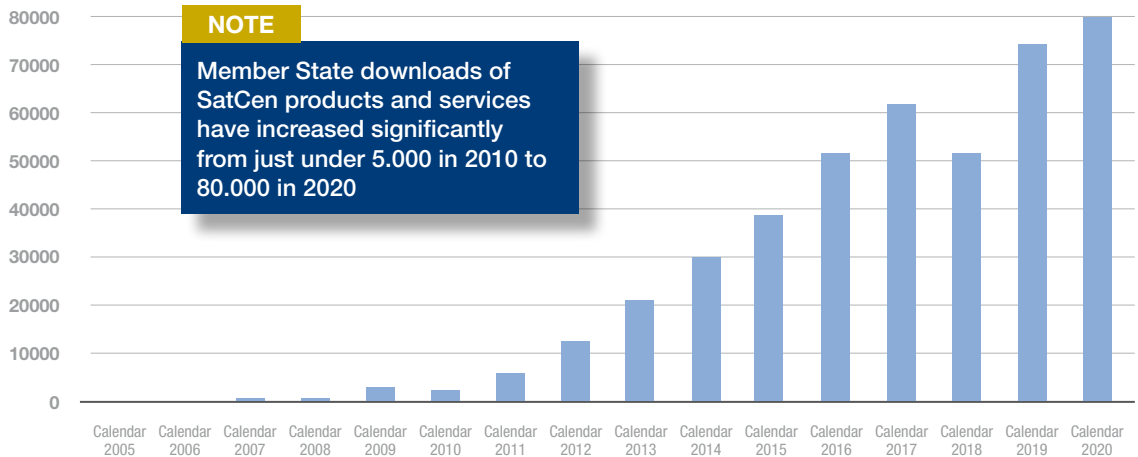


NOTE

SatCen production share for EU missions and operations increased from 3% in 2019 to 17% in 2020, in line with Member State and HR/VP recommendations

Given the significant increase in the production share for EU missions and operations, from 3% in 2019 to 17% in 2020, within the context of existing human resource constraints, the share of SatCen output to Member States (MS) decreased from 24% in 2019 to 13% in 2020.

Evolution of downloads by Member States



NOTE

Member State downloads of SatCen products and services have increased significantly from just under 5.000 in 2010 to 80.000 in 2020



Visit of SIAC Directors to SatCen on 29 January 2020

2.2.1 Service Provision to EEAS/SIAC

SatCen has provided the EEAS with continuous situational awareness services throughout the year, analysing global events that have taken place and delivering autonomous assessments of the situations unfolding in every corner of the world.

In 2020, the Centre continued to provide its full range of geospatial intelligence support to its core user SIAC, the EU's intelligence analysis entity (consisting of INTCEN & EUMS INT).



Visit of Rear Admiral Fabio Agostini, Commander of EUNAVFOR MED Operation IRINI, 01 July 2020

2.2.2 Support to Operation EUNAVFOR MED IRINI

SatCen had been monitoring the activity taking place at Libyan ports and airports and was familiarised with the patterns of cargo handling activity, including delivery of weapons and other military-related equipment, for an extensive period. Based on this essential experience, the Centre was able to immediately provide support to the new EU naval operation IRINI, right from the beginning of the mission.

SatCen was able to combine information from multiple sources, such as automatic identification system (AIS) data and open sources imagery, with satellite imagery confirmation of activity in violation of the UN arms embargo. Since the operation was launched in May, SatCen delivered 444 reports over the course of 2020.

“IRINI monitors violations of the UN arms embargo on Libya occurring at sea but also on land and by air. During the past year alone, it tracked 16 Libyan ports and oil facilities, 25 airports and landing strips and close to 200 flights suspected of carrying military related cargos to and from Libya. For that purpose, IRINI can also rely on the information provided by the European Union Satellite Centre, thus demonstrating the importance of this capability to European security.”

HR/VP Josep Borrell Blog Post regarding recent visit to IRINI HQ, 21 March 2021

2.2.3 Support to UNSMIL

In addition to the work being carried out for the EEAS (SIAC) and Operation IRINI in Libya, the Council also requested SatCen to support the mandate of the UN Support Mission in Libya (UNSMIL) with geospatial information. Geospatial analysis is key when there is a lack of other reliable sources of information. The UN needed to assess the quality of local governance in the different areas of the country and to do so, they have concluded that changes in the population is a good indirect indicator.

SatCen developed a set of methodologies based on the precise digitalisation and characterisation of occupied buildings, supported by artificial intelligence (AI) algorithms and specific night-time imagery. Using these methodologies, SatCen was able to provide an accurate estimation of the population in different Libyan districts.



2.2.4 Copernicus SEA

Copernicus SEA has run for another year completely embedded in the structure of SatCen's Operations Division, sharing tools and workflows with the rest of the analytical workforce. For unclassified tasking, SatCen continued to outsource part of the

work to industry and assured the resulting products met the same quality standards as those produced in-house. This approach widens SatCen's portfolio, as well as increases the number of users within the EU external action ecosystem.



*Imagery Analysis at SatCen's Operational Division.
Geospatial analysis is based on long-standing professional expertise and experience.
©SatCen*

2.2.5 Support to Frontex

The year 2020 also marked the 5th anniversary of operational SatCen support to the European Border and Coast Guard Agency (Frontex). It was in March 2015, as the migration crisis in the Mediterranean Sea reached an unprecedented peak, that SatCen and Frontex signed a service level agreement (SLA), initiating a period of intense cooperation under the



umbrella of the European Border Surveillance system (EUROSUR) and the Copernicus surveillance service. Since then, more than 2.000 geospatial analysis products have been delivered.



“We have developed together (...) very sophisticated services, services that have helped not only Frontex, but also the border guard community all over Europe (...) to manage their borders efficiently.”

Director Dirk Vande Ryse, Situational Awareness and Monitoring Division, Frontex

SatCen continued to support Frontex by providing monitoring and analysing irregular migrant flows and cross-border activity, including cross-border crime. In 2020, the number of accepted tasks coming from Frontex increased by 8% compared to the previous year (from 224 in 2019 to 242 in 2020) and consequently production increased significantly by 18% with a total of 692 products being delivered.

In 2020, SatCen streamlined its service evolution activities with Frontex and implemented a set of focused initiatives to support service expansion and improvement. On the automation side, SatCen finalised its AI study on the detection of vehicles and vessels in very high-resolution satellite images, delivering a set of trained models and datasets that will provide additional value for future SatCen AI initiatives. Regarding data provision, engagement with new data providers continued to assess night-time imagery and new synthetic aperture radar (SAR) data offers. Finally, following a Frontex request, SatCen developed a dedicated prototype to improve task management. The tool will reach an operational status in 2021.

Regarding the medium-term evolution of research and investigation (R&I) for border surveillance, in 2020 the CALLISTO project was awarded under

the framework of H2020. The full project name is “Copernicus Artificial Intelligence Services and data fusion with other distributed data sources and processing at the edge to support DIAS (data information and access system) and HPC infrastructures”.

The project is building an AI-powered platform on top of the ONDA DIAS infrastructure for four distinct use cases. SatCen leads the use case activity on land border change detection and coordinates the design of the holistic validation approach.

SatCen’s long-standing cooperation with the Commission, and especially the last four years of implementation of the Copernicus SEA service and Frontex SLA by SatCen, paved the way for the next phase of the service under the framework of Copernicus 2.0. In 2020, SatCen started to prepare with the Commission the next phase of both Copernicus SEA and the Frontex SLA, activity to be continued in 2021 to ensure full operational continuity in 2022.

2.2.6 Support to OSCE

For those areas in Eastern Ukraine where the OSCE Monitors are denied freedom of access, SatCen continues to be a critical source of information that

provides awareness and supportive evidence of possible ceasefire violations, military activity and disengagement operations.



2.2.7 Support to OPCW

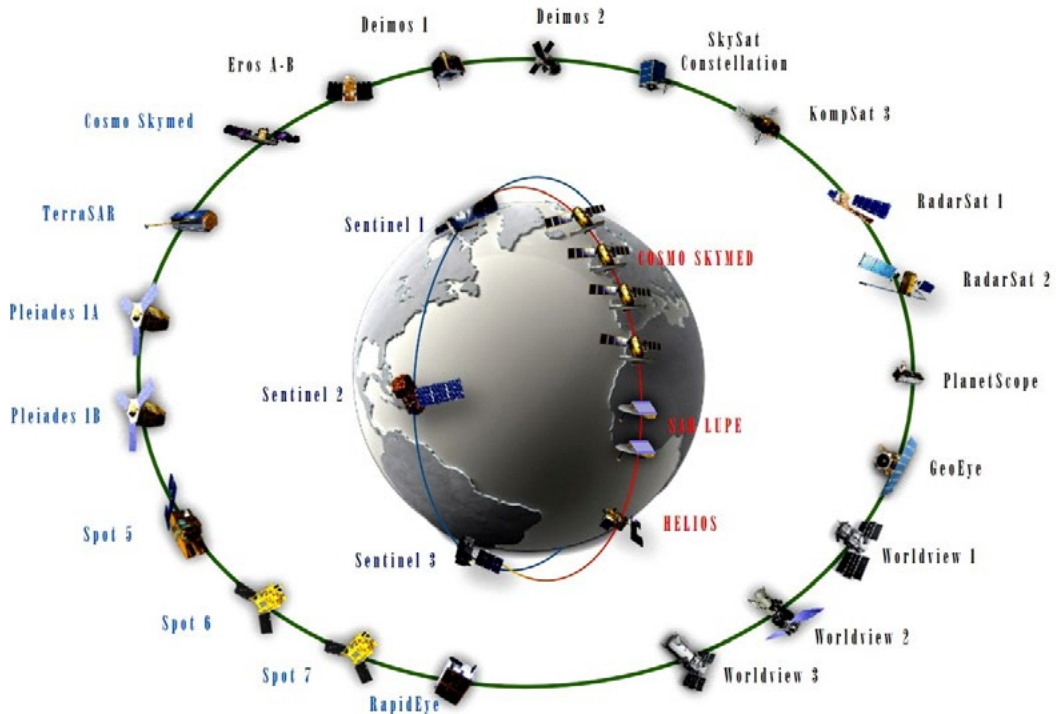
In line with the Service Level Agreement signed by SatCen with the Organisation for the Prohibition of Chemical Weapons (OPCW) in March 2018, implementing Council Decision (CFSP) 2017/2303 supporting the OPCW Fact Finding Mission in Syria, the Centre continued its analysis support to OPCW. As one example from 2020, SatCen provided topo-

graphic data of an area of interest where chemical attacks were reported in February 2018. In addition to this service, the Centre provided a 3D scene of the area of interest, allowing the final user to interact with the scene with the functionality of fly through, show and hide layers, as well as to consult some predefined bookmarks.

2.3 Data Provision Services

The primary source of data for SatCen analysis services is commercial satellite operators, complemented with governmental providers used on a case-by-case basis.

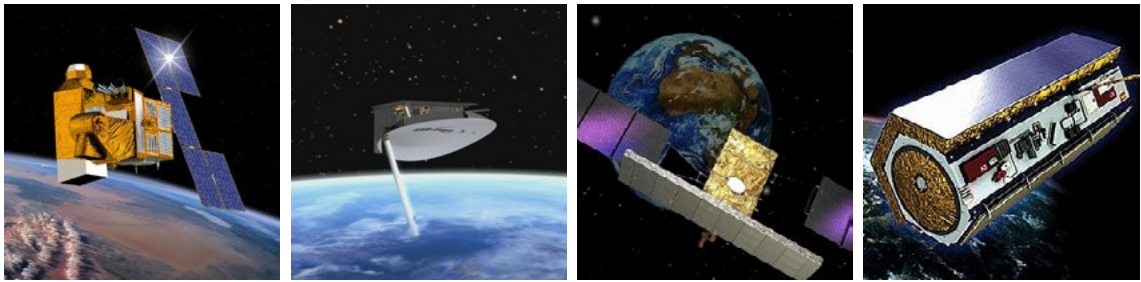
The increase in tasking over recent years has not only led to a subsequent increase in products but has also had an impact on the production process, with SatCen adapting its workflows in response to the high volume of images.



Space sensors accessible by SatCen. In red: governmental, blue: European, black: commercial © SatCen

The ability to react timely and flexibly is one of SatCen's core strengths. In this context, tailored commercial solutions like framework contracts with data providers support a very high level of responsiveness. To complement and enrich the analysis,

collateral data (i.e. essential additional information supporting and complementing the imagery analysis) is acquired from open sources and users of the Centre's services.



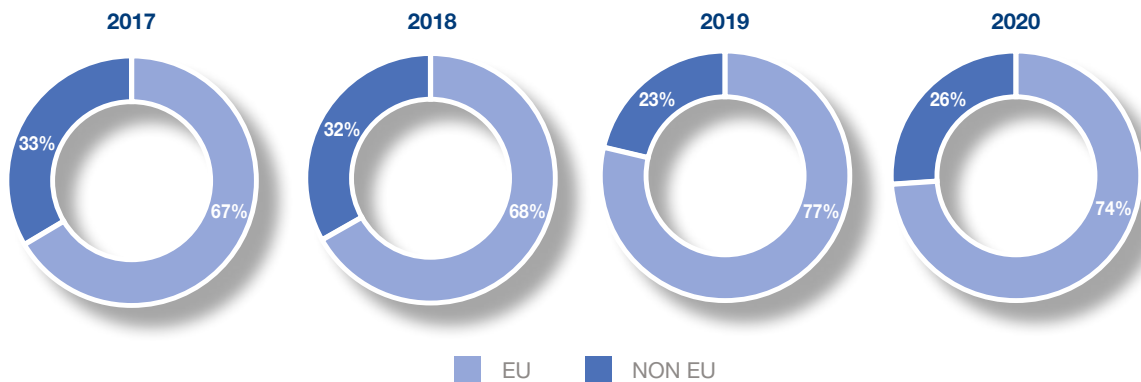
Governmental space sensors accessible to SatCen, from left to right: HELIOS, SAR-Lupe, COSMO-SkyMed and PAZ © ESA

In 2020, the EO data quota granted by the European Commission to SatCen through the Copernicus Data Warehouse was of great importance and significantly contributed to the Centre’s analytical capability. In return, SatCen provided the European Space Agency (ESA) and the Commission with requirements for security applications for the Warehouse to constantly improve data acquisition.

data acquired from European commercial satellite imagery providers has increased significantly in recent years representing around 75% of the total data expenditure in the last two years, compared to about 6% a decade ago. This became possible through the increased quality of service of European satellite data providers and the development of a close and efficient working partnership between SatCen and these providers.

One important aspect to be highlighted is the fact that the share of the Centre’s direct expenditure for

Satellite Data Acquisition expenses 2017-2020 split by provider based on Sensor (EU/NON-EU)



NOTE

In 2010, the share of expenditure with European satellite data providers for SatCen was just 6%. In the last years this share increased to around 75%

The Centre liaised with commercial providers aimed at further improving access to satellite resources and capabilities. Negotiations with the most relevant providers are a continuous process and lead to improved contractual conditions, financial optimisation and better service provision.

As far as European providers are concerned, the Centre worked closely with Airbus (Pleiades, Spot 6/7, TerraSAR-X, TanDEM-X), E-Geos (COSMO-SkyMed) and HISDESAT Servicios Estratégicos S.A (PAZ) , adapting their tasking procedures to the Centre’s evolving data needs. In particular, the Centre signed with Airbus an NDA for its participation in the Pleiades Neo Early Adopter programme (the first of 4 satellites to be launched on 16th April 2021) and followed up its participation in the Airbus OneAtlas platform ‘Early Adopter Program’ testing various modalities (data/tasking /defence site monitoring). Since its launch, Pléiades imagery has been increasingly used, contributing to SatCen’s operational capacity. The tri-stereo capability of the Pléiades and Spot 6 / 7 sensors has led to an enhancement of SatCen’s analytical capability by allowing the generation of digital

elevation model products ideal for 3D modelling and 3D analysis.

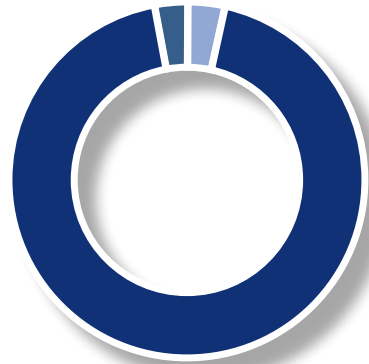
SatCen also made use of annual subscription services from MAXAR (SecureWatch service) and investigated the potential operational use of the growing offer from new satellite constellations that promise better revisiting time with eventual multiple acquisitions per day. To that end, the Centre already established a working relationship with Planet Labs (US) which can provide so far up to four revisits per day at certain latitudes, while it has started contact and negotiations with more satellite imagery providers (optical & radar) such as ICEYE (FI), Capella (US) & Satellogic (AR).

Depending on the nature of specific task requests, the Centre also obtained very high-resolution 3D textured Digital Surface Models.

Below is the distribution of imagery handled in 2020 by sensor type. The vast majority of imagery was very high-resolution optical imagery, in line with the nature of tasking requirements.

Images acquired in 2020 by sensor nature & resolution

Sensor	Images	Square km
Synthetic aperture radar	160	13.082
Optical high resolution	192	69.199
Optical very high resolution	4.594	525.588
Total	4.946	607.869



- Synthetic Aperture Data | **3,2%**
- Optical High resolution | **3,9%**
- Optical Very high resolution | **92,9%**

3 IMPROVING CAPABILITIES

3.1 Capability Development and Cooperation in Space, Security and Defence

SatGen continued to improve internal processes and to develop support tools to optimise the workflow and the use of resources. The Centre participated in relevant EU programmes and initiatives, in full compliance with the framework provided by the Council Decision of 26 June 2014 and following the decisions and recommendations of the Board and the Council. Involvement in such activities has provided valuable tools and services in support of

the SatGen mission, thereby contributing to the protection of space assets, supporting EU external action, border and maritime surveillance activities, as well as developing innovative Earth observation solutions. It also constitutes an important source of additional tools and resources for the benefit of SatGen, its stakeholders, users and the European Commission.

3.1.1 Cooperation with the European Commission

SatGen cooperation with the Commission ranges from the involvement in several R&I initiatives, cooperation with other EU agencies and Directorate Generals of the Commission, up to the participation in the operational implementation of the Copernicus programme and Space Surveillance and Tracking (SST) Support Framework of the Union with all its components.

The Centre continued its collaboration with DG DEFIS, mainly within the framework of Copernicus.

As Entrusted Entity for the implementation of Copernicus SEA, SatGen participated in the Copernicus governance bodies (i.e. Copernicus Committee, Security Board, and User Forum). SatGen also started to work on establishing the basis for future cooperation with the Commission within the framework of Copernicus 2.0 and the new EU space programme in view of ensuring full SEA service continuity from 2022 and onwards.



“Space is the new frontier of global politics. Rise in geopolitical tensions on earth is being extended and projected into space. The EU has a solid track on acting together: Copernicus EU, Galileo GNSS & EU SatCen. And we will strengthen our capacity to act.”

J. Borrell (Jan 2020)

Under the framework of the interagency cooperation and Copernicus border surveillance, SatCen continued its support to Frontex through service provision and started the preparation of the next SLA for 2022 onwards. In parallel, a working arrangement (WA) between both agencies is also foreseen. The WA will not replace or repeal the SLA, but will be an overarching cooperation instrument aimed at enhancing the cooperation between SatCen and Frontex and exploring new areas of common interest.

SatCen and the European Fisheries Control Agency (EFCA) are progressing towards reaching interagency cooperation, in particular in the area of actionable geo-spatial intelligence to support fisheries control, within the framework of Copernicus SEA.

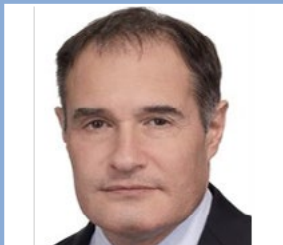


“My objectives are clear: to maintain the EU’s autonomous capacity to observe the Earth and to position Copernicus at the edge of the technological frontier.”

T. Breton (Jan 2020)

The Centre’s involvement in DG MARE’s Common Information Sharing Environment (CISE) initiative continued through its participation in the CISE Stakeholders Group, in close coordination with Member States and EU agencies, accompanying CISE’s network evolution in achieving an operational framework.

Cooperation with DG ECHO for the coordination of Copernicus SEA with the Copernicus Emergency Management Service (EMS) was strengthened and resulted in new tasks for the SEA service, in addition to the routine coordination regularly in place between SEA and EMS.



“Frontex recognises the importance of SatCen’s products and services as important tools, which support our efforts in addressing cross-border crime and illegal migration.”

Fabrice Leggeri, Executive Director of Frontex, official correspondence to SatCen Director, October 2020

SatCen continued its cooperation with DG RTD, DG CNECT and DG HOME, as part of its research, technology development and innovation (RTDI) activities, progressively increasing its participation in relevant projects, as well as contributing to Commission-driven initiatives such as EuroGEO (the European contribution to the Group on Earth Observations) and the Community of Research.

R&I initiatives under the H2020 programme strongly contributed to cooperation with the Commission and they remain essential to support the continuous enhancement of SatCen core capabilities. Initiatives that started as R&I projects evolved into significant operational activities which are strategic for the Centre and its users, such as Copernicus SEA, support to Frontex for Copernicus border surveillance and the Centre's ongoing role in SST.



"SatCen's role in Copernicus is a valuable expression of synergies among EU space related activities, to the benefit of the European citizens".

S. Ducaru (Oct 2020)

"The EU's Earth-observation programme, Copernicus, is instrumental to the implementation of many EU policies".

T. Pesonen (Nov 2020)

The work on six H2020 projects continued in 2020, namely CivilNext, MEDEA, Marine-EO, NextGEOSS, BETTER and E-SHAPE, while three new projects, AR-COS, ENTRUSTED and GEM, were kicked-off during the year. In addition, the new projects AI4Copernicus, PROMENADE and CALLISTO, SPACEWAYS and EUSTM were positively evaluated and will start in 2021. Thanks to these projects, SatCen contributed to user engagement and uptake activities, worked in the gathering of user requirements, as well as for the technological development and the evolution of operational services, including Copernicus and SST.

It is further noteworthy to highlight that through the ENTRUSTED project, led by GSA/EUSPA, SatCen is contributing to the shaping of the future EU GOVSATCOM programme, coordinating the gathering of user requirements for future secure satellite communications services.

In a nutshell, 2020 has been key to continue and reinforce SatCen's mutually beneficial cooperation with the Commission in many areas and to work on the continuity of this growing cooperation in the framework of the 2021-2027 MFF, approved in December 2020 by the EU Council, in particular regarding the new EU space programme, Copernicus 2.0 and SST.

3.1.2 The Copernicus Programme

As an entrusted entity of Copernicus SEA and cooperating with Frontex in the Copernicus border surveil-

lance component, SatCen continued to contribute to the security service of the Copernicus programme.

The Copernicus Programme

The implementation of the delegation agreement for Copernicus SEA and the SLA with Frontex represents 30% of SatCen total production.

The Copernicus activities include medium-term R&I (e.g. H2020 projects), short-term service evolution (e.g. pilot projects, conducted together with users to create new and innovative products) and user uptake for user engagement.

Since 2019, Copernicus SEA supports EUNAVFOR ATALANTA activities with custom-designed intelligence products based on the analysis of satellite imagery.

The EU has been providing humanitarian aid since 1992 in over 140 countries, helping victims of man-made and natural disasters worldwide. During 2020, Copernicus SEA delivered products to assess the extent and type of damage over several villages after destructive events, including the reporting on its impact on the operational status of local infrastructures. Copernicus SEA has thus provided the foundation on which to initiate response planning.

In the past year, the SEA service continued to provide its users with rapid, on-demand geospatial information (71 activations and 184 products) for the detection and monitoring of events or activities that may have implications for European and global security. The information provided contributed to improving EU capacities in crisis prevention, preparedness and response.

To offer a direct link with the end-users and support the tasking process, the daily implementation of the service production and the management providing real-time insights on tasking, production status and

workload capacity, a service management infrastructure (SMI) is under development.

As part of the continuous Copernicus SEA R&I and service evolution initiatives, several pilot projects were conducted in cooperation with users to develop comprehensive solutions for new application areas and products to be transferred into the SEA portfolio. Successful pilots were produced for monitoring illegal activities, e.g. in the framework of law enforcement (illegal smuggling, illegal mining), environmental crime (illegal waste) and transportation safety and security, together with EEAS and different Member States.

Moreover, R&I and service evolution activities include participation in specific EU-funded research and innovation projects (e.g. H2020). One example is the Arctic Observatory for Copernicus SEA Security Service (ARCOS). The project, kicked-off on 01 December 2020 and will design and implement an early-warning system capable of providing continuous monitoring of the Arctic region, i.e. the Copernicus SEA Arctic Observatory (CSAO). Through the exploitation of near real-time innovative AI analysis techniques, the CSAO system will integrate information from space and non-space sources, including data provided by other Copernicus ser-

vices, such as the Copernicus Marine Environment Monitoring Service (CMEMS) and the Copernicus Climate Change Service (C3S), to generate actionable products for decision-makers.

The Hovering Horizon bi-monthly magazine, which reached 110 subscribers, addressed topics such

as security in the Arctic region, the impact of COVID-19 and the possibilities of Earth observation and geospatial technologies to provide insight for decision-makers, climate and security, economic diplomacy and latest available technologies in Earth observation.

Josep Borrell Fontelles @JosepBorrellF · Feb 3

The Arctic regions are a perfect illustration of why we need the EU Green Deal, and of how broadly we must conceive Europe's geopolitical interests.

Read my new blog post on why the Arctic is a key region for the EU and global security: europa.eu/1PN38jC

#ArcticFrontiers

“The impact of climate change, security issues and rivalries are growing in the Arctic regions. So is the need for cooperation and multilateral agreements.”

JOSEP BORRELL

50 66 132

HR/VP Josep Borrell on the importance of the Arctic. February 2021

ARCOS
Arctic Observatory for Copernicus SEA Service

Where are we

The project kicked-off on 1st December 2020 and is expected to end in May 2022. Several activities have already started, in particular the following Work Packages (WPs):

- WP 2 - Use Cases Definition and Analysis of User Needs and Requirements
- WP 3 - Thematic products: design, development and assessment
- WP 4 - Platform implementation

Project Management	Use Cases & Requirements	Thematic Products	Reference Data	Data and Validation	Integration with SEA	Communication	Other
3%	45%	5%	5%	0%	0%	0%	3%
WP 1	WP 2	WP 3	WP 4	WP 5	WP 6	WP 7	WP 8

Upcoming Milestones

As the project evolves, new deliverables will be issued, containing information potentially interesting for the user community in general and the advisory board MEMBERS in particular. These deliverables may include interactions with the advisory board in the form of feedback collection and VTC meetings.

WP	Milestone	Date	Reference to the AB
WP 2	European Policy analysis	Jun 21	The document will analyse the underlying elements that should guide the development of the AB, to include the regulatory and institutional framework concerning the EU strategic agenda for the Arctic. It may contain the structure and components of the advisory board.
WP 2	Collection WP output of user Requirements	Apr 21	AB will be consulted to understand their needs, to assess the user requirements, operational needs and operational and institutional requirements (tools, formats, input formats, output formats, data gaps, etc.).
WP 3 and WP 4	Design documentation of system outputs and processing chains	Jun 21	Four versions of the technical documentation to be updated throughout the project will be made available to the AB.
WP 7	Project website	May 21	Project website will be published in the upcoming months.

ARCOS H2020 project © e-Geos

Security

March – April 2020

Hovering Horizon
Issue 5

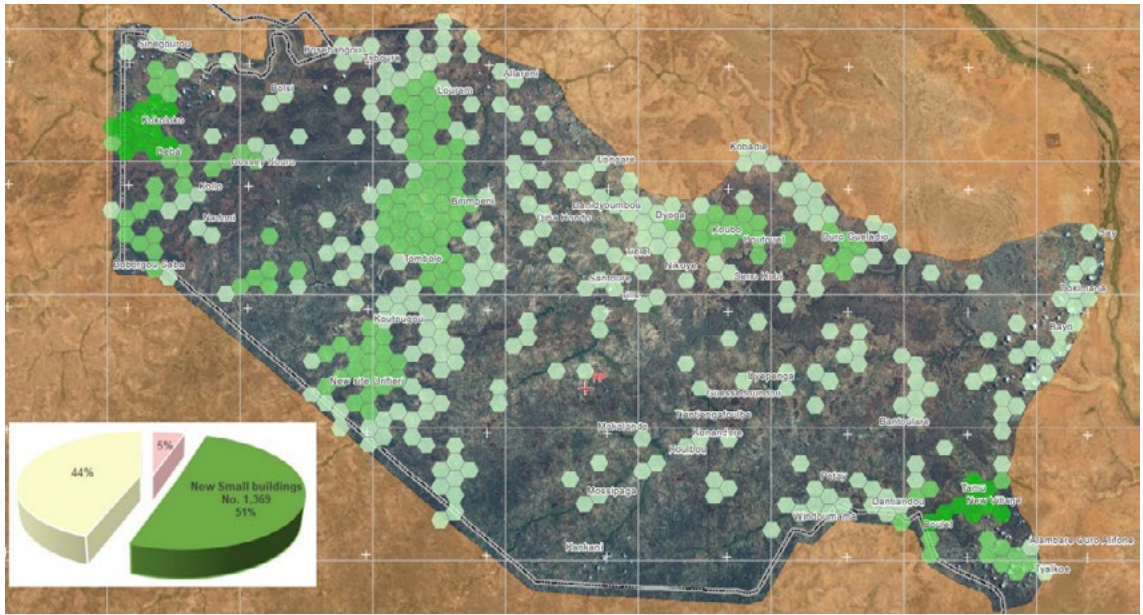
Featuring EO Solutions for pandemic crisis **COVID-19**

Copernicus Service in Support to EU External Action

Implemented by:

Read magazine

Hovering Horizon magazine: Featuring EO Solutions for pandemic crisis – COVID-19 (Issue5). © European Union 2020. All Rights Reserved



Buildings Density Map © European Union 2020. All Rights Reserved

As for SEA user uptake, SatCen continued user engagement activities for the whole of 2020. Due to the pandemic, remote info-sessions replaced the visits to the Member States. Such events increase user awareness of the SEA service and engage new users. User uptake initiatives are a fundamental instrument for the progressive enlargement of the Copernicus SEA user community and identification of upcoming user needs or areas of activity.

As a result, in 2020, for the first time, French Customs cooperation mission with Niger requested the analysis of urban growth in a large area for the detection of new buildings potentially used as warehouses.

SatCen increased its communication efforts in collaboration with the Copernicus programme, providing constant updates on service outcomes, activities and use cases via different media platforms.



Read more

Copernicus SEA fourth anniversary publication on the Copernicus Observer Newsletter. © European Union 2020 All Rights Reserved.



Representation of man-made objects orbiting the Earth larger than 1 cm. © SST Cooperation

3.1.3 Space Situational Awareness (SSA)

SatCen has been working for the past 10 years on SSA/SST, due to its strong institutional links with EU Member States and its long-standing experience on service provision and security matters.

More precisely, SatCen is the EU SST Front Desk, cooperating closely with the SST Consortium (currently composed of seven Member States: DE, ES, FR, IT, PO, PT, RO) in the EU Space Surveillance and Tracking (SST) Support Framework, managed by the European Commission.

Since 2016, the SST Consortium and SatCen have worked together to develop a European SST capability with the support of the European Union under different funding lines (H2020, Galileo & Copernicus programmes), and formed the SST Cooperation.

As the EU SST Front Desk, SatCen operates and consolidates the dedicated service provision interface for delivering SST services to SST users (the EU SST Portal, available at <https://portal.eusst.eu>) and operates the EU SST Helpdesk to support SST users.

Space Situational Awareness (SSA)

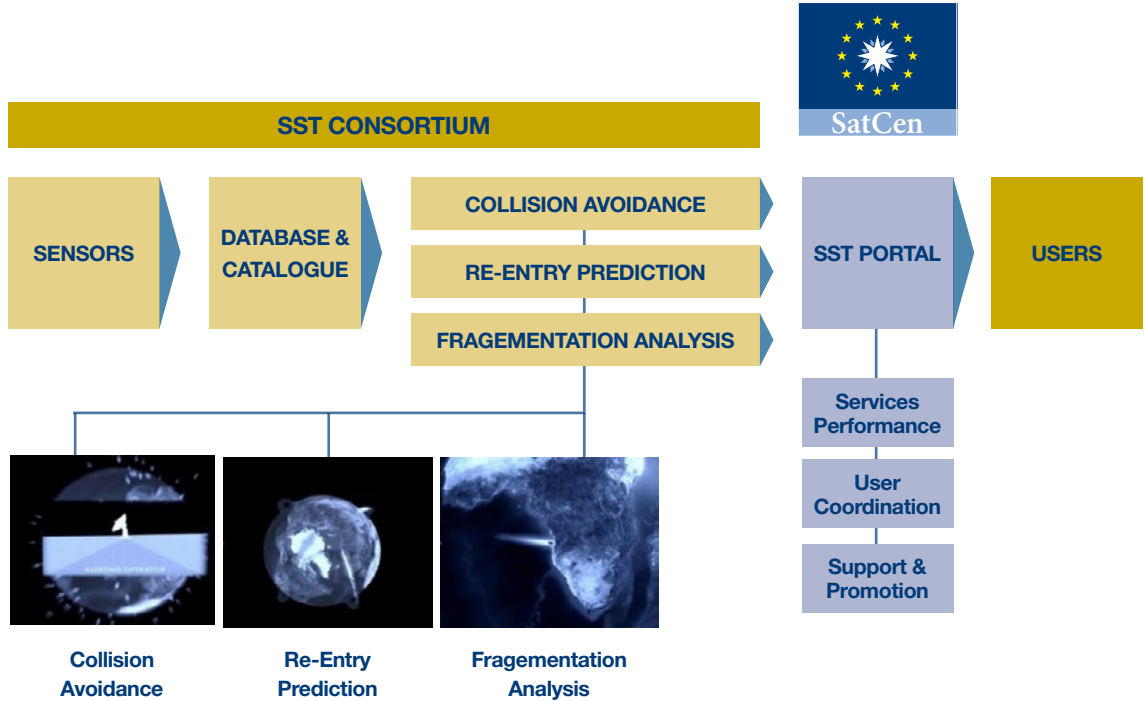
SSA and SST activities aim at protecting the safety and security of European economies, societies and citizens, which rely on space-based applications such as communication, navigation and Earth observation.

SST activities protect space-based assets from the risk of collision against other satellites or space debris, detect and characterise fragmentations in space, and predict the re-entry of space objects that may cause damage on the ground.

**Read
more**

The Centre is the main interface for the provision of three SST services: Collision Avoidance, Re-entry Analysis and Fragmentation Analysis. Feedback from users is excellent, with very positive comments on the

support provided by the Front Desk and an overall score of 8.6/10 at the last user consultation (December 2020).



Currently, 100 organisations receive the SST services through SatCen; these are satellite operators, civil protection entities, EU institutions and bodies, and EU Member States. More than 200 European satellites are safeguarded from the risk of collision against space debris and other satellites.

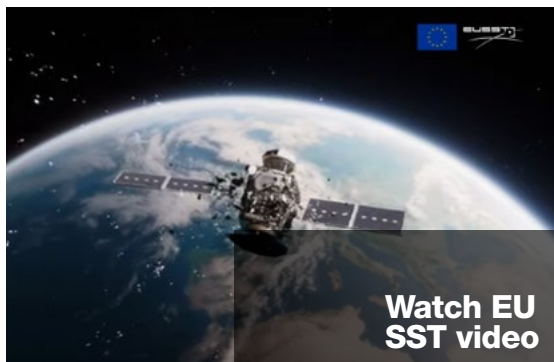
SatCen also leads key performance indicator activities to support the management of the EU SST Support Framework, providing metrics covering all

EU SST functions: sensors (e.g. sensor availability, data shared), processing (e.g. orbit coverage) and services (e.g. the number of events).

SatCen is also responsible for leading the user coordination activities, supporting, promoting and encouraging the use of SST services, as well as for gathering feedback from users for the continuous improvement of the EU SST capability.

Services	Products	Portal & Helpdesk	Users	Additional
Collision Avoidance Events 375 risky ¹ conjunctions	Collision Avoidance Products 290000 CDMs/Reports	SST Portal Availability 99.88%	Users 96 Organisations 174 Users	KPIs +50 Indicators monitored and reported
Re-entry Events 58	Re-entry Products 435 Reports	Helpdesk 368 Requests registrations and support	Satellites 211 European Satellites	Taskforce³ 3 Activations for high interest events
Fragmentation Events 8	Fragmentation Products 21 Reports	User Feedback² on Front Desk 8.6/10	2nd EU SST Webinar 450 Live Attenders	+ Activities on <ul style="list-style-type: none"> • SW Development • Dissemination • Communication • STM

In 2020, the EU SST Service Portfolio was redesigned and updated, providing a more visual and user-friendly overview, and a new SST Portal is being developed to improve user experience and the functions offered.



EUSST @EU_SST · 21h
 European cooperation at its best: 🇪🇺 countries sensor data & services provided by #EUSST Operations Centres help monitor a potential collision of #space objects COSMOS 2004 & CZ-4C R/B tonight (00:56UTC). Current miss distance estimate 65m & ~1.6% scaled collision probability.

🇪🇺 DG DEFIS #StrongerTogether and 9 others

EUSST @EU_SST · 1h
 #EUSST continues monitoring the event. Still awaiting for the objects to pass over our sensors to confirm there was no collision.

Activation of the EU SST Taskforce. © SST Cooperation

Furthermore, in 2020 SatCen led and developed different EU SST communication activities, including the production of the first EU SST promotional video and the update of its website with a new content

structure, and coordinated the EU SST Taskforce, created to deal with scenarios associated with critical operations and high media interest events.

1. Risk conjunctions stands for close approaches with a high level of risk (also known as high interest events), potentially requiring collision avoidance manoeuvres to be performed by the satellite operators.
 2. User feedback campaign performed from 23rd Nov to 11th Dec 2020 with an approx. participation rate of 40% of the organizations.
 3. Responsible for ensuring effective communication with key stakeholders when facing crisis management and mediatic events.

A highlight was the 2nd EU SST Webinar, organised by SatCen and held on 16 November 2020, which presented the latest developments and how the different Operations Centres and the SST Front Desk are currently working to provide SST services.

Speakers included representatives from the European Commission (DG DEFIS and DG ECHO), the EEAS, the SST Consortium and SST users (EUMETSAT). The webinar attracted 450 live participants.



The 2nd EU SST Webinar took place on 16 November 2020. © SST Cooperation

Watch
2nd EU
SST
Webinar



Visit by HR/VP Josep Borrell to the EU SST Front Desk – February 2020 © SatCen

SatCen's SST activities can also support the HR/VP, together with the European Commission and in close coordination with the EU Member States, to promote space sustainability including reducing space debris proliferation.

Capitalising on its long-standing operational experience in secure service provision and its tight insti-

tutional links with Member States, the Centre has evolved into a unique instrument of security from space and in space, ready for the future EU space programme and its new SSA component.

3.1.4 Research, Technology Development and Innovation (RTDI)

Research, Technology Development and Innovation

RTDI initiatives are part of SatCen R&I activities with the aim of implementing new operational solutions, looking at the whole EO and collateral data lifecycle, to enhance SatCen core capabilities.

Main work streams are related to:

- Enhancement of secure communications capabilities (e.g. EU GOVSATCOM)
- Exploitation of new data acquisition systems (e.g. HAPS)
- Development of advanced EO applications (e.g. SAR change detection)
- Implementation of innovative technologies (e.g. big data, AI)

Security is an intricate concept that can be addressed from many different angles. Main policies on security have to be coordinated with other EU and global policies such as the EU Green Deal, the Paris Agreement, the Sendai Framework and the UN Sustainable Development Agenda, which also have a security dimension as they aim for the well-being and safety of citizens and societies.

When it comes to space and security, or in other words, how space can help address security challenges, the state of play has changed dramatically in the last decade. Emerging scenarios such as Climate Security generate the need to characterize the complex relationship between different events to be prepared to answer future risks. The potential of the vast amounts of EO and collateral data that have become available, together with the emergence of technologies like big data analysis and AI, has opened the door to a wide range of new applications, as e.g. employed for the Digital Twin Earth initiative.

Leveraging suitable R&I projects, SatCen has continued to implement and evaluate new solutions

looking at the technological advances applicable along the whole data lifecycle. This helps to face traditional and new security issues and supports the Centre's operational teams in utilising new services and technologies in line with market trends.

Participation in H2020 projects is one of the pillars of RTDI activities. Projects such as NextGEOSS and BETTER provided SatCen with the opportunity to test new technologies for EO platforms and to respond to security challenges with the use of big EO data, while E-SHAPE is a unique initiative to cooperate within the wide European EO community.

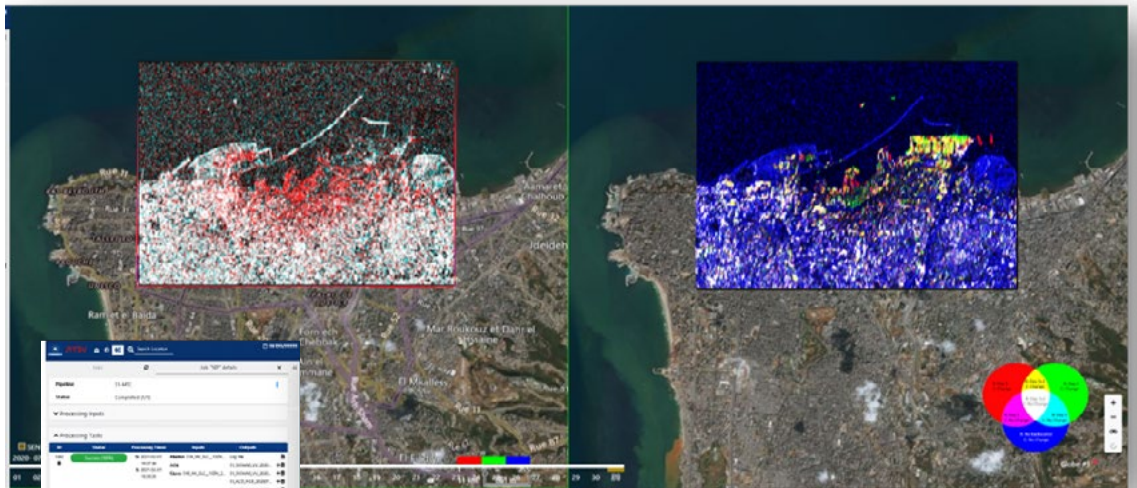
The Global Earth Monitoring (GEM) project will continue tackling key technological trends in EO, specifically to monitor large areas and address the nexus between climate change and security. Furthermore, SatCen is coordinating the activities to elaborate a user requirements document serving as input to future EU GOVSATCOM activities in the ENTRUSTED project, a Coordination and Support Action that has established an initial network of users of secure satellite communications composed of Member States and EU entities.



RTDI H2020 projects

The Geospatial Data Management Platform (GEO-DAMP) was conceived to sustain results from R&I projects, to facilitate geospatial data exploitation and to foster a collaborative approach for different initiatives, this way demonstrating the vast potential of working in a platform-based approach, serving as a building block for the future SatCen secure platform. From its current portfolio of services, which included operational services such as advanced processing of SAR imagery, automatic change de-

tection techniques and time-series visualisation, GEO-DAMP evolved to allow external authorised users to access those services through the platform. New pre-operational results from several projects and initiatives were integrated, including the visualisation of geolocation traces from mobile devices fused with satellite data, the access to open datasets on conflicts and events, and the visualisation of AIS data, a fundamental source of information when integrated with satellite images.



Quick assessment of the damage produced by the explosion in Beirut (August 2020) performed using advanced SAR (Sentinel-1) processing over the GEO-DAMP platform © SatCen

Read Article

In addition, within this year marked by the COVID-19 pandemic, SatCen’s RTDI Unit evaluated how EO data can support situational awareness during a health crisis, for instance, to assess the activities in airports and ports, as well as the variation in atmospheric emissions and industrial activities.

These activities, alongside participation in other initiatives with the Open Geospatial Consortium and the Data, Artificial Intelligence and Robotics Association, in which EO suitable technologies are discussed and tested, stimulated interests and pri-

orities that serve to build the roadmap of RTDI activities for the coming years and to contribute to the Centre’s overall R&I development.

SatCen RTDI activities have significantly evolved in the last 5 years, increasing SatCen’s participation in the EC R&I framework programme and enlarging cooperation with key entities in the space and security domain such as the EC, ESA and GEO. These R&I activities help SatCen remain state-of-the-art regarding technologies and EO applications.



Visit of SatCen Director Amb Sorin Ducaru to EDA, and meeting with the new EDA Chief Executive, Amb. Jiri Sedevy, 10 July 2020

3.1.5 Cooperation with the European Defence Agency (EDA)

SatCen’s close cooperation with the EDA continued in 2020 with various common initiatives. In July, a new EDA SatCen roadmap of activities was elaborated and became the subject of an exchange of views between the SatCen Director and the EDA CEO during a visit at EDA on 10 July. This cooperation combines EDA’s expertise in the fields of governance, harmonisation of technical requirements and project management, with SatCen’s longstanding operational expertise in providing space-based products and services.

Key areas for joint projects are geospatial analysis and imagery exploitation, future space-based EO systems, CIS and cyber defence, AI tools for space and security, and maritime surveillance.

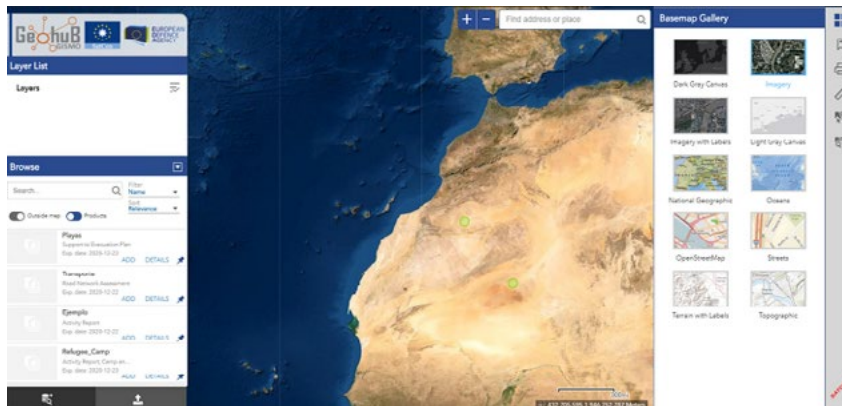
In December, EDA and SatCen published an article in the EDA magazine “European Defence Matters” about their cooperation, its framework and common projects. As “Natural Partners” in European security and defence, the two agencies collaborate closely for further development of capabilities that strengthen EU strategic autonomy.



Download magazine

The maritime surveillance (MARSUR) project aims to share information in the maritime domain. An arrangement was concluded with EDA and the MARSUR contributing Member States, including possible SatCen participation in the MARSUR III project, aiming at the sustainment of the existing MARSUR Network, the enhancement of its operational use and its further development for the period 2021-2026. A MARSUR management and PAB meeting in September finalised the transition towards MARSUR III.

In the framework of the geospatial information to support decision making in operations (GISMO) initiative, SatCen prepared the deployment of GeohuB, the geospatial content manager that aims to enable HQ environments to share geospatial information, at the OHQ Rota for EUNAVFOR ATALANTA, including training of its staff. It is already deployed and operational in EUNAVFOR IRINI as well as EUMM Georgia, and also supports EU exercises.



*GeohuB - Geospatial content manager for sharing of geospatial information at EU OHQs.
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The GeonaW initiative produced a reference study for the application of positioning, navigation and timing (PNT), which will be used to develop geospatial solutions to support operational planning in the context of navigation warfare and PNT denied environments.

GeonaW II will start in April 2021 for a duration of 15 months. It will define and implement the first pro-

totype of a solution to create products supporting decision making for planning and operations. It will capitalise on the existing GeohuB tool (from the GIS-MO initiative), providing additional functionalities in support of EU operations.



*Visit of Ferdinando Dolce, Project Officer Space at European Defence Agency (EDA) on 08 July 2020
©SatCen*

An exchange of letters with EDA was finalised for the machine-based algorithms and tools for enriched imagery intelligence exploitation (MATRIX) joint initiative, which will start in March 2021 with

a duration of 18 months. MATRIX aims to provide a landscape study on AI solutions for supporting complex imagery intelligence (IMINT) processes. The project's main ambition is to foster the creation of a common framework for addressing AI applications that can effectively and efficiently support the needs of the IMINT community, paving the way for future developments.

For effective exploitation of the radar satellite images, SatCen has supported the radar imagery application supporting actionable intelligence (REACT) initiative for the 5 last years. In 2020, REACT2 finished the technical implementation and now allows access to national MOD users, as well as Frontex and SatCen, enabling better analysis of radar satellites imagery. The REACT 3 framework was launched at the end of 2020 to provide a full operational capability with tools for SAR imagery exploitation.

3.1.6 Cooperation with the European Space Agency (ESA)

The Directors of SatCen and ESA EOP met in January 2020 and agreed to boost SatCen-ESA cooperation, already established in the administrative arrangement signed in 2018, with the implementation of a large-scale pilot project. This project will focus

on the complex topic of climate and security from an EO-based perspective. SatCen and ESA defined several working scenarios that will be discussed in 2021 with relevant experts in the domains of climate, security and space.



[Read article](#)

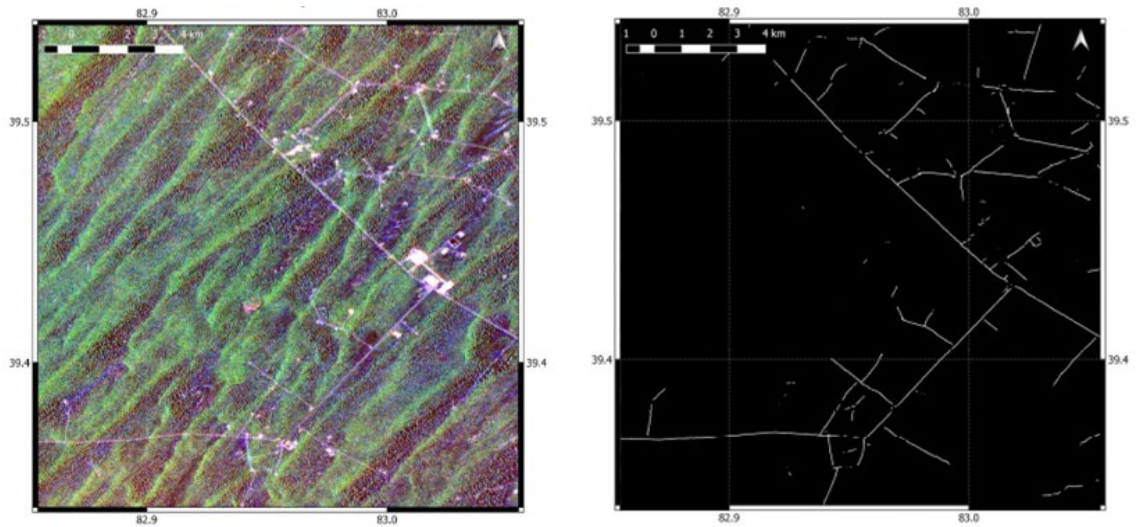
The event aimed at providing the foundation for an interactive model of the Earth, reflecting physical aspects of our planet with an impact on the safety and security of citizens. © ESA / SatCen

SatCen's cooperation with the ESA Φ -lab continued, having as the main outcome a study published in a peer-reviewed paper on how to extract linear features from Sentinel-1 imagery with ML/AI techniques. Moreover, SatCen provided support to ESA industrial developments implemented within the EOP and TIA programmes through participating in defining requirements and evaluating technical solutions.

Concerning dissemination initiatives, SatCen organised a side event on "Digital Twin Earth for Security" as part of the ESA Phi-week 2020, with more than 100 participants. Moreover, the next edition of the big data from space conference (jointly organised by ESA, SatCen and JRC) was successfully planned and will take place in May 2021.



SatCen Director Sorin Ducaru and ESA Dir. General Aschbacher in Brussels on the occasion of the European Space Policy Conference, January 2020



**Read
more**

ESA-SatCen article on the use of Artificial Intelligence on SAR Imagery. Image above: SAR data analysis scenario (on the left side the processed SAR image used as input to the model, on the right side the roads detected by the model, June 2020)

As in previous years, SatCen continued its participation in the Group on Earth Observations (GEO), contributing to the European GEO High-Level Working Group and the EuroGEO Coordination Group, and maintaining a regular dialogue with DGs RTD and DEFIS, as well as with other relevant EU entities and Member States participating in GEO.⁴

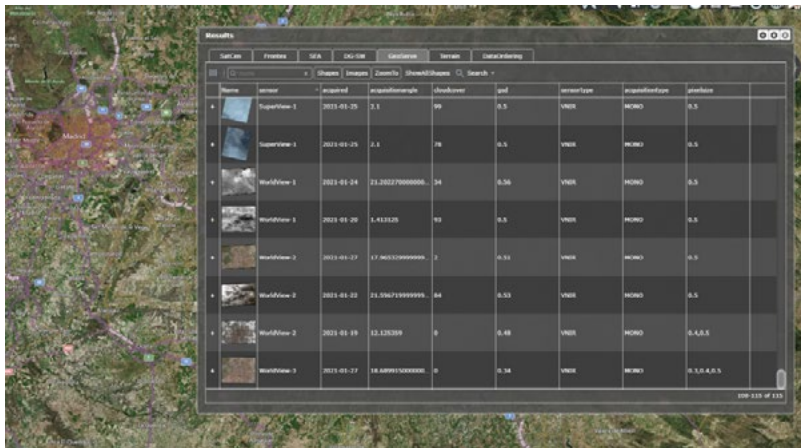
The GEO Space and Security Community Activity, led by SatCen, incorporated new partners in 2020 and started working on the activities defined for the period 2020-2022, which includes a pilot project that will constitute a quantitative leap for the community in 2021, putting in place a collaborative workspace to develop EO solutions for security.

4. SatCen leads the GEO Space and Security Community Activity, aiming at ensuring the wellbeing and security of countries and citizens by exploiting suitable space assets and collateral data

3.2 Innovation in Information and Communication Technology

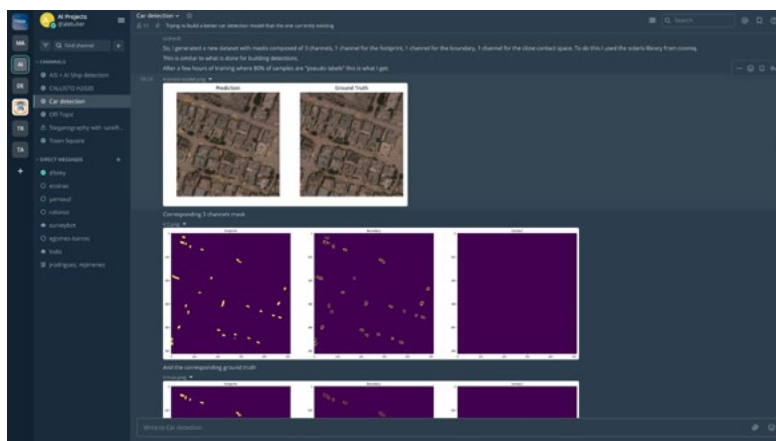
To meet the specific teleworking requirements during the pandemic, SatCen invested in the relevant IT infrastructure to support the maximum operational productivity possible under such uniquely challenging conditions.

Full commercial satellite imagery catalogues have been integrated into the operational geospatial tool.



Commercial images catalogues in 3D Catalogue

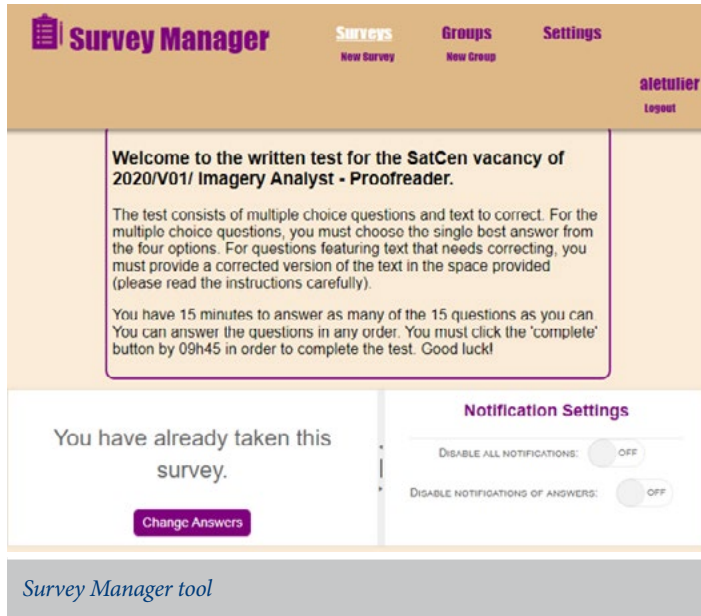
Various AI models have been trained and integrated into the SatCen 3D Catalogue to be consumed interactively by analysts.



Collaborative tool

An internal survey tool has been deployed to gather the status of staff in remote work, to organise staff committee elections and to manage online exercises

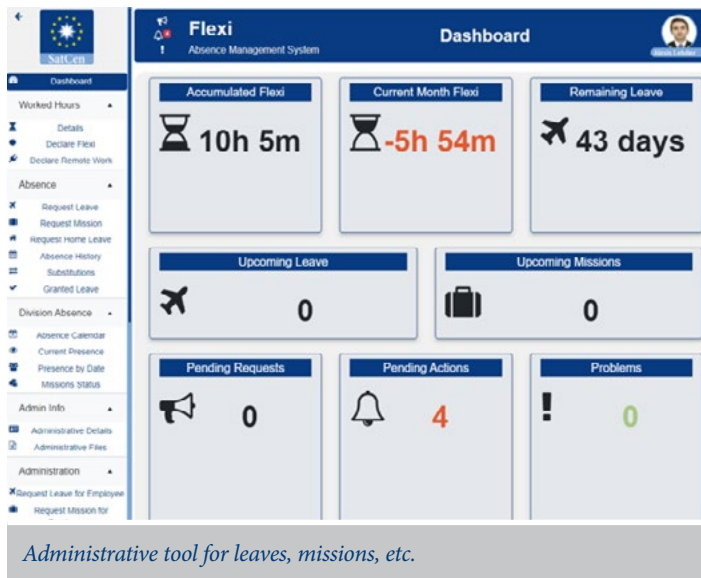
for remote recruitment sessions conditioned by the COVID situation.



Survey Manager tool

The internal administrative tool managing procurement, leaves, missions and administrative details has been re-developed using new technologies after

11 years of use, and deployed to the SatCen private cloud.



Administrative tool for leaves, missions, etc.



Training Unit instructor teaching imagery interpretation of military installations to a group of senior and junior imagery analysts from the Finnish Armed Forces and Coastguard. The course took place in Finland in October 2020. © SatCen 2020. All right reserved

3.3 Training

The Centre's 2020 training activities were severely constrained due to the ongoing pandemic. Despite having to cancel or postpone several presentational courses, SatCen managed to hold a variety of training seminars with an adjusted programme, reduced student numbers and an extension of online training. Nevertheless, the classes offered still included core topics like data processing, IMINT, geospatial intelligence, SAR processing, nuclear fuel cycle, as well as several in-situ courses (e.g. for FRONTEX and the Finnish MoD staff)⁵.

The main objective of SatCen's training programme, however, remained unchanged, which is to empower its analysts with all the relevant skills and knowledge for their professional duties and to provide spare capacities to analysts of Member States and institutions.

This integration of external staff provides a solid foundation of peer-to-peer contact and knowledge exchange, aimed at establishing trustful relations between different stakeholders, fostering a common culture and common methods.

Additionally, the SatCen Training Campus was updated and populated with new information regarding online courses. Specific lectures and exercises were delivered through the portal for enlisted students.

Finally, a particular effort was made to ensure the online participation of SatCen staff to the training course for PRINCE 2 certification, a process-based method for effective project management.

5. Students and instructors had to follow strict COVID-19 protection measures at all times



Review of progress on the SatCen building extension

3.4 Building Extension

Taking into consideration the significant increase in SatCen's activity over the last decade, in 2018 the SatCen Board approved an extension of the Centre's facilities and the associated budget (1.6M Euros), with the aim of starting the building extension works in 2020.

Preparatory work for this project was performed with support from the technical department of the Spanish Ministry of Defence, which drew up an architectural project, as well as the procurement procedure through a bidding process, on which basis the work contract was awarded to a construction company.

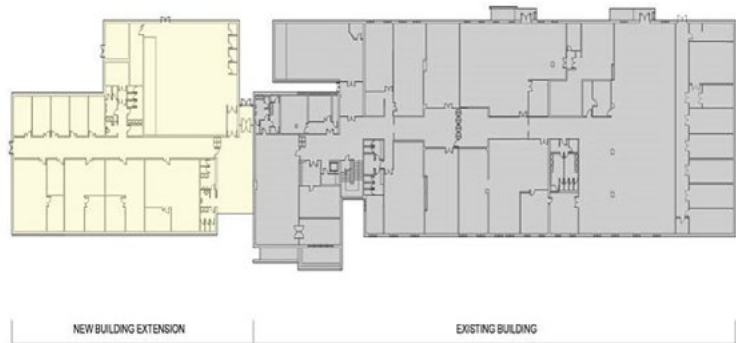
The extension consists of a new wing for the SatCen building of 1.273 m² (representing a 30% increase in working space), which will include a modern con-

ference hall, with the possibility of being configured for board meetings, external visits on SatCen's site or for training purposes, as well as dedicated operational working areas, a server room, a technical facilities area and sanitary facilities. The use of the extended space will allow for the optimisation of the very dense operational and IT activity in a secure environment on-site and will take into consideration SatCen Tomorrow development options, in line with the Member States' decision on the level of ambition for the future of SatCen. The construction will allow further extensions if/when needed in the future.

The works for the extension of the current SatCen building started in December 2020 and are scheduled to be finalised in the beginning of 2022, in time for the celebration of SatCen's 30th anniversary, in the second half of 2022.



WorldView-3 © 2021 DigitalGlobe, Inc. Review of progress on the SatCen building extension. When photographed from above, the new SatCen building will resemble a satellite; the main three-level building, in the center, representing the core body, while the one-level building structures on both sides act as the “solar wings”



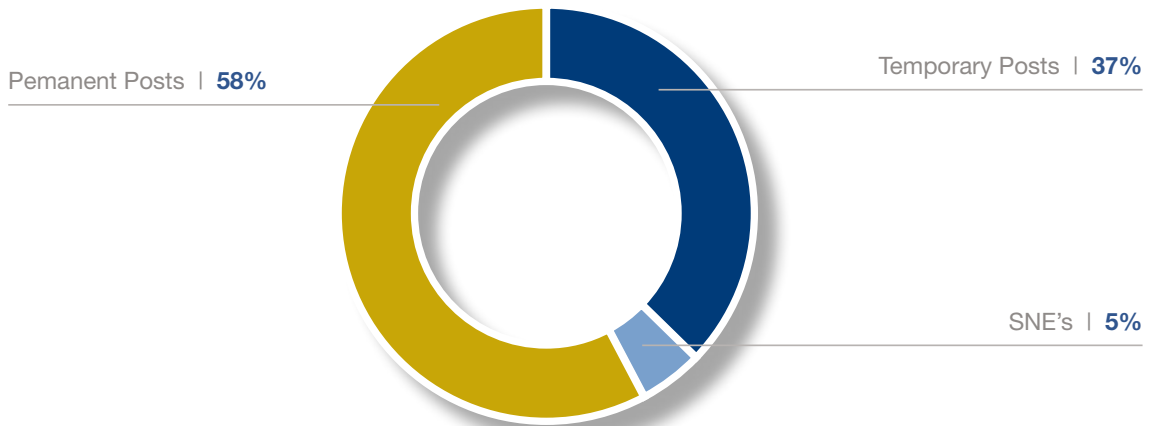
Existing and new building extension floor plans

4 RESOURCE MANAGEMENT

SatCen's key characteristic derives from its expertise-intensive activity. Its highly qualified and dedicated personnel are the Centre's main asset. Given the specificity of the Centre's activity, with a high level of expertise, reactivity to urgent tasks and being continuously at the cutting edge of technological developments, the permanent access to the newest techniques and technologies and well as consistent and updated training are key to maintaining the essential added value of SatCen's human resources.

At the end of 2020, SatCen was composed of 144 staff: 89 permanent staff members, 50 temporary staff members, 1 local staff member and 4 seconded national experts (SNEs), complementing the pool of imagery analysts. We also had 4 trainees collaborating on various tasks. The breakdown by type is illustrated below.

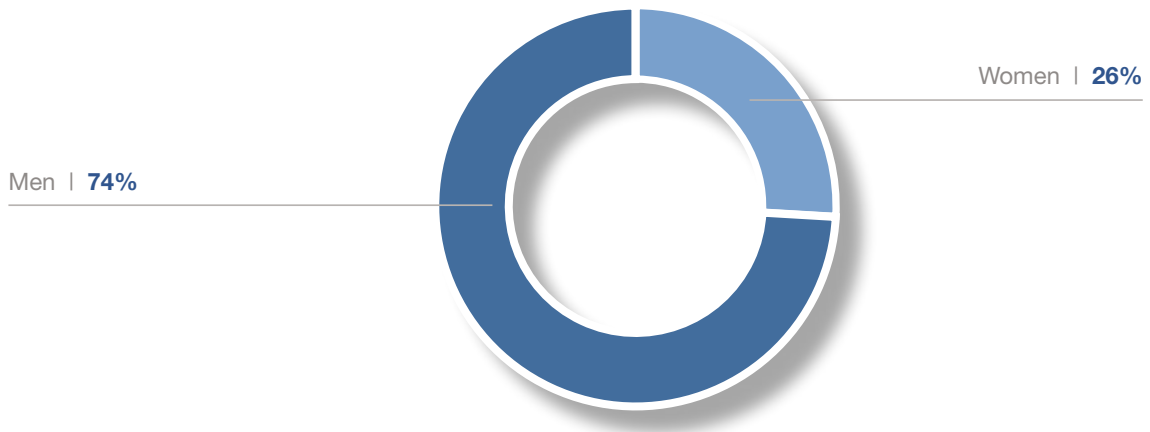
SatCen Posts and SNE's



As of 31 December 2020, SatCen staff represented 18 nationalities, across 5 different age groups. Despite the high level of diversity represented by our employees - both permanent and temporary staff - the gender breakdown remains 103 males to 36 fe-

males. To this end, the Centre is continuously working on initiatives and efforts around diversity and inclusion to make progress in improving the gender balance and national representation of SatCen staff.

SatCen Gender Representation



As in previous years, seconded national experts (SNEs) were a channel for the mutual exchange of expertise between SatCen and Member States. In 2020, the Centre hosted SNEs from Hungary, Poland and Romania.

SNEs not only reinforce the operational capacity and widen the spectrum of services, as recommended by the HR/VP, but also help foster transparency and a fruitful exchange of knowledge. The hosting of SNEs is also an effective way of spreading awareness of SatCen capabilities and helps in the important goal of strengthening operational ties

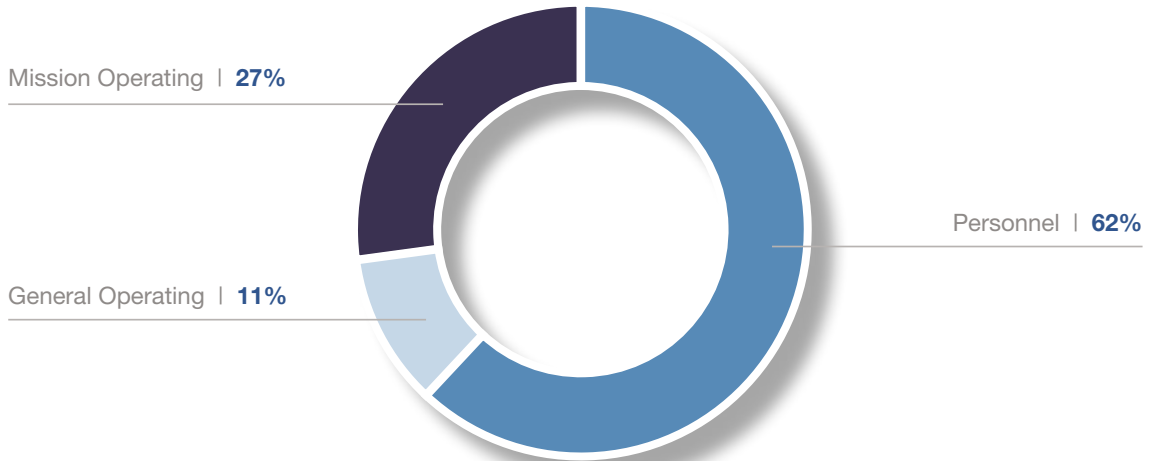
with Member States. During the last semester of 2020, the Centre prepared the mandated exit of all UK national staff.

Due to the COVID-19 pandemic, SatCen implemented a contingency plan to prevent and mitigate risks associated with the spread of the new COVID-19 virus at the Centre, with the primary objective of ensuring a safe working environment for our staff and maintaining operational continuity. These measures were evaluated regularly based on feedback from staff and the evolution of the pandemic, being reviewed whenever justified and necessary.

The following chart illustrates SatCen’s general budget for 2020 by expenditure chapters. It reflects the weight of its human capital in SatCen’s activity, whose excellence is based on the high-level expertise and dedication of the specialised staff. The importance of the state of the art IT support and

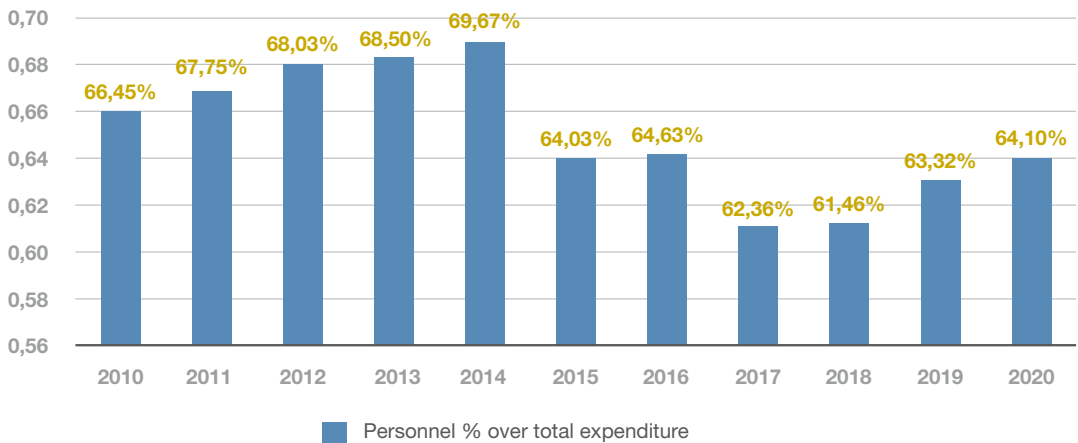
dedicated applications mostly developed in-house, enabled the Centre to maintain its 2019 output level also in 2020, despite the challenges resulting from the pandemic, and while national contributions to the Centre’s budget did not increase.

Expenditure Distribution 2020



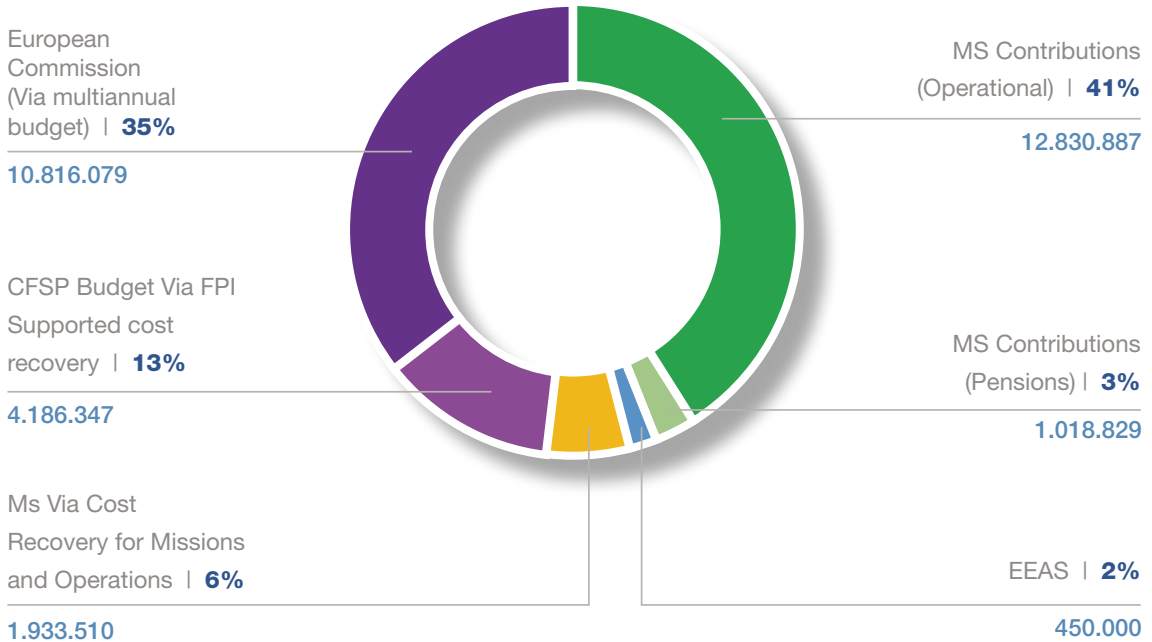
The following chart displays the cost of personnel over total expenditure:

Evolution of the Share of Personnel Expenditure: 2010 - 2020



The income sources of the SatCen Budget 2020 are depicted below:

SatCen's 2020 budget by funding source, including the pensions budget and the multiannual budget



The Centre's Finance Unit committed to enforcing the "Implementation Manual of SatCen Financial Rules" by the end of the year, which was duly accomplished. A sound document was produced, depicting all areas of SatCen finance accurately. The document is the continuation of the already successful publication of "The SatCen Financial Operational Procedures", developed and approved in 2019, covering all accounting policies and the Chart of Accounts.

The publication of the new implementation manual completes full compliance with Article 14.8 of

the Financial Regulations, which stipulates that the Centre "shall establish rules and procedures in implementation of these Financial Regulations". The Implementation Manual is intended to be a living document subject to improvement, either by refinement of the procedures in line with actual convenience of practices, or on the basis of the recommendations of the College of Auditors.

The Finance Unit continues improving its management and reporting processes and procedures to meet the needs of Member States, as well as to facilitate the operational activity of the Centre.

5 CONCLUSIONS – LOOKING INTO THE FUTURE

While 2020 was considered by most of the long-standing SatCen staff members as potentially the most challenging year experienced at SatCen, so far, there is no expectation of any substantial decrease in terms of intensity, complexity and challenging activity in the future. With an ongoing pandemic, it is indeed our remarkable capacity of adaptation to the new ‘Covid normal’ and the perspective of the EU mass vaccination programme that have enabled SatCen management to aim for an ambitious Work Programme approved by the Member States, along with the 2021 Budget, at the end of last year. It is important to highlight that, with all the difficult economic consequences determined by the pandemic, the 27 EU Member States have made a substantial effort to compensate for the loss of the former UK contribution to SatCen’s budget and also agree on 3.7% additional increase in their contributions to the Centre’s budget in 2021. This is indeed a sign of recognition of SatCen’s special role and added value to EU strategic autonomy, but also a strong responsibility for SatCen management and staff to continuously adapt, enhance their performance and deliver on the Centre’s comprehensive mission.

The Strategic Compass debate, which will continue in 2021 (to be concluded in early 2022), offers a first-hand opportunity to develop a coordinated security, defence and space strategy approach that can simultaneously link various policy domains, while also enhancing the visibility and importance of space for security and defence. Subsequently, the Strategic Compass, along with the EU space programme offer a special opportunity for bold EU strategic thinking and investments in space. SatCen will continue to respond positively to any requests to contribute to the ongoing debate with input reflecting its unique autonomous role and blend of complex, technology enabled, operational activity with a specific focus on

CFSP/CSDP and with relevant contributions to all four focus areas covered by the Strategic Compass.

With all its dramatic impact, in so many ways, including the restrictions upon activity on the ground, the pandemic has highlighted even more the value of space assets and geospatial analysis capabilities. Based on the experience of the last few years, user demand for SatCen products and services is expected to continue to grow at a fast pace. Proving a high level of resilience, versatility and adaptability, SatCen has not only succeeded in keeping its key performance indicators at the high level of the previous year, but has transformed this hard push away from any previous ‘comfort zone’ (if one ever existed) into an opportunity to adapt and improve its modus operandi, while increasing the quality, complexity and delivery speed of its products and services. This trend will continue to be driven by the requirements of its users.

The HR/VP Report on SatCen, along with its recommendations, endorsed by the Council in 2020, pointed out the broadening spectrum of security threats and the resulting increase in SatCen user demand. This augmentation applies to both quantity and quality, as well as to frequent requests for sharply reduced response times. Against this background, the need to assure sustainable funding to support SatCen’s growing user demand and role is key.

When closing his visit to SatCen in 2020, the HR/VP Josep Borrell concluded that the Centre deserved to be more visible and present on the “political orbit” of the EU and Member States’ decision making. From the perspective of his role as Chair of the SatCen Board, he expressed his interest in chairing a ministerial level Board meeting, with the

aim of increasing awareness of the unique role and significance of SatCen and deciding on the future level of ambition and associated resourcing for the future of the Centre. The timing for such a high-level discussion on the level of ambition for SatCen's development seems to be quite ripe for 2021.

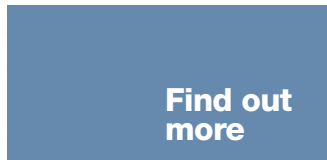
The analysis and debate, on strategic goals and implementations options related to the future of SatCen, carried out at working-level by SatCen, jointly with the Member States, the EEAS and the Centre's stakeholders, is based on the evolving security environment, the trend of growing user demand, as well as on important developments in the availability of data and advanced analysis techniques and tools. The results of the analysis and discussion point to a necessary upgrade of the SatCen business model, with the key goal of enabling the Centre to continue to support growing user needs and to sustain the increasing EU level of ambition in terms of security and autonomy. The refined implementation options offer the basis for an informed decision on the level of ambition for SatCen's short and long-term development perspectives.

The picture of 2021 and its significance for SatCen's future would not be complete without highlighting the forthcoming relevant discussions and approval

processes regarding the continuity and evolution of SatCen's role and services related to three Commission supported activities within the EU space programme: the Copernicus programme; geospatial analysis support to Frontex; and the Front Desk role for the SST Component.

To conclude, 2021 will indeed be an inflection point in shaping some strategic decisions regarding SatCen's future. They have to be clearly correlated to the growing complexity of our security environment, to the EU level of ambition in the field of security, defence and space, as reflected in the Strategic Compass debate, and to relevant technological developments. With its 30th anniversary coming up in the second part of 2022, SatCen has not only resiliently stood the test of time, while fulfilling its mission, but has continuously evolved, driven by the requirements of its key stakeholders - the Member States and its growing user community. The increased relevance, volume, speed, quality and cost-efficiency of its products and services, enabled by the professionalism and dedication of its staff, clearly reflect how the resources invested in SatCen generate a multiplier effect and reinforce the strategic value of a European autonomous resource to the EU, its Member States and its citizens.

 **General Claudio Graziano** @ChairmanEUMC · Feb 5
 Satellite Centre @eusatcen supports the decision making process since the early phases with services, products and #intelligence analysis timely manner. Its support to the #CSDP #military missions & operations is of paramount importance
 #EUdefence #StrongerTogether



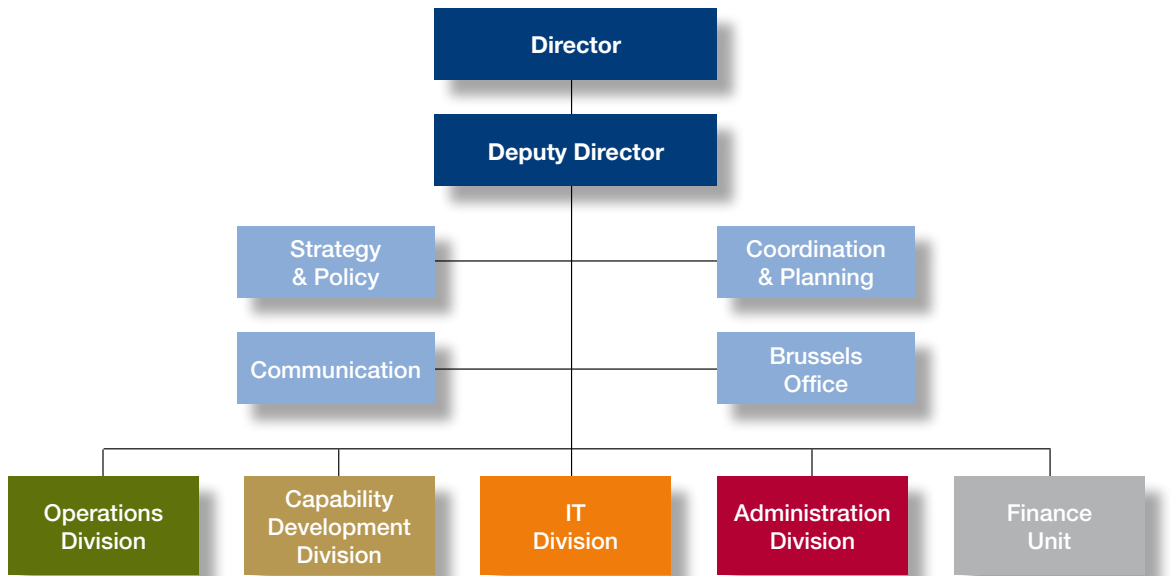
First High-Level visit at SatCen in 2021. General Claudio Graziano, Chairman of the EU Military Committee expressing his appreciation towards SatCen's increased support to EU Operations and Missions

ANNEX 1. ABBREVIATIONS

AI	Artificial Intelligence
ARTES	Advanced Research in Telecommunications Systems
BEARTESTTER	Big-data Earth Observation Technology and Tools Enhancing Research and Development
CFSP	Common Foreign and Security Policy
CMPD	Crisis Management and Planning Department
CNES	Centre National d'Études Spatiales (French National Centre for Space Studies)
CPCC	Civilian Planning and Conduct Capability
CSDP	Common Security and Defence Policy
EC	European Commission
EDA	European Defence Agency
EEAS	European External Action Service
EO	Earth Observation
ESA	European Space Agency
E-SHAPE	EuroGEO showcases: applications powered by Europe
ENTRUSTED	European Networking for Satellite Telecommunication Roadmap for the Governmental Users Requiring Secure, Interoperable, Innovative and Standardised Services
EUMM	European Union Monitoring Mission
EUMS	European Union Military Staff
FPI	Foreign Policy Instrument
Frontex	European Border and Coast Guard Agency
GEO	Group on Earth Observation
GEO-DAMP	Geospatial data Management Platform
GEOS	Global Earth Observation System of Systems
GEOINT	Geospatial Information to Support Decision Making in Operations
HR/VP	High Representative of the Union for Foreign Affairs and Security

IMINT	Imagery Intelligence
INTCEN	Intelligence and Situation Centre
MARSUR	Maritime Surveillance
MFF	Multi-annual Financial Framework
MPCC	Military Planning and Conduct Capability
NAVFOR	Naval Force(s)
NAVWAR	Navigation Warfare
NextGEOSS	Next Generation GEOSS for Innovation and Business
OHQ	Operations Headquarters
OSCE	Organization for Security and Cooperation in Europe
PAB	Project Arrangement Board
PSC	Political and Security Committee
REACT	Radar Imagery Applications Supporting Actionable Intelligence
RTDI	Research, Technology Development and Innovation
SAR	Synthetic Aperture Radar
SEA	Support to EU External Action (Copernicus)
SIAC	Single Intelligence Analysis Capacity
SMM	Special Monitoring Mission
SNE	Seconded National Expert
SSA	Space Situational Awareness
SST	Space Surveillance and Tracking
STF	Space Task Force
TAB	Technical Advisory Board

ANNEX 2. ORGANISATIONAL CHART



ANNEX 3. MEETINGS AND EVENTS

The Centre received and organised the following key visits and meetings in 2020, in addition to a high number of online meetings held under pandemic conditions:

13 January	Representatives of the Italian Air Force visit the Copernicus SEA service
24 January	Visit of General Romeo-Cristian Bizadea, Deputy Director, Romanian Intelligence Service
29 January	Visit of Mr Jose Casimiro Ferreira Morgado, Director, EU INTCEN and Brigadier General Radoslaw Jezewski, Director, EUMS Intelligence Directorate
31 January	A Spanish Delegation from several Ministries visits the Copernicus SEA service
5 February	46 th Technical Working Group
6 February	47 th Expert User Forum
14 February	Visit of H.E. Karoline Edtstadler, Federal Minister of Austria for the EU and Constitution
24 February	Visit of HR/VP Josep Borrell
28 February	Visit of Rear Admiral Jean-Michel Martinet, Deputy Operations Commander, EUNAVFOR MED Operation SOPHIA
3 March	Visit of Mr Pascal Savouret, EFCA Executive Director
19 June	Visit of H. E. Ambassador João António da Costa Mira Gomes
1 July	Visit of Rear Admiral Fabio Agostini, Commander EUNAVFOR MED Operation IRINI
7 July	Visit of Lieutenant General Luis Manuel Martínez Meijide, UME Commander
15 July	Visit of H.E. Ambassador Nives Malenica, Embassy of Croatia in Spain and H.E. Ambassador Giovanni Xuereb, Embassy of Malta in Spain
16 July	Visit of H. E. Ambassador László Odrobina PhD, Embassy of Hungary in Spain
31 August	Visit of Director Dr Paulo Lourenço, Portuguese Directorate General of Defence Policy
17 September	Visit of Major General Michel Friedling, Commander, French Space Command
22 September	Visit of Sra. Dña. Elena Gómez Castro, Directora General de Política de Defensa, MoD Spain, and Sr. Fidel Sendagorta Gómez del Campillo, Director General de Política Exterior y de Seguridad, MFA Spain
24 September	Visit of H.E. Ms Florence Parly, Minister of the Armed Forces of France
5 November	Visit of H.E. Margarita Robles, Minister of Defence of Spain

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