ESA Patents

ESA Space IP Market Day

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Innovation Services Section

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ESA COMMERCIALIZATION - SCALEUP OVERVIEW

INVEST

SUPPORTING THE SCALEUP OF VENTURES

BUSINESS SUPPORT

Pool of various services to best answer individual acceleration needs

For companies with high business potential with mature technology

ESA MARKETPLACE

Development of industrial players on new upstream & downstream markets aggregating service requests and offers from and for industry

INNOVATE

BOOSTING INNOVATION AND COMMERCIALISATION

Φ-LABNET

Disruptive research innovation projects

ESA BICs NETWORK

Start-up creation & incubation services for entrepreneurs

ESA BROKERS NETWORK

Commercial innovation projects integrating space technologies

ESA PATENTS PORTFOLIO

ESA Innovation Services

- ESA Patent Portfolio Management.
- IP Licensing.
- Maturation of ESA inventions, facilitating access to technical expertise.
- Patent landscaping

Why does ESA protect inventions?

PROTECTION

Protect ESA's programmes and prevent others from blocking them

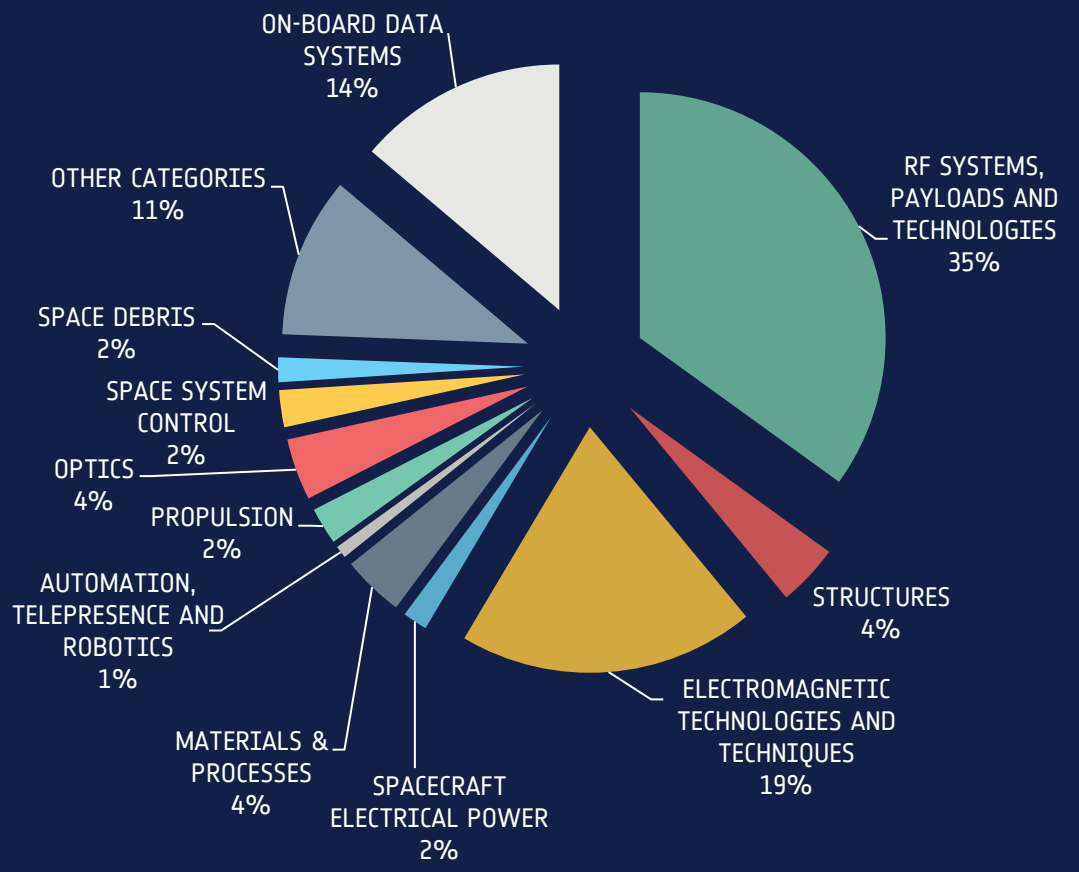
EXPLOITATION

Give competitive advantage to European space industry

TRADING

Cross licence or use it as a trading mechanism

ESA Patent Portfolio Profile



119 inventions protected by 552 granted patents and patent applications

~64% of portfolio is in use

- R&D
- Mission
- Licenses

ESA licensing policy

European MS Industry

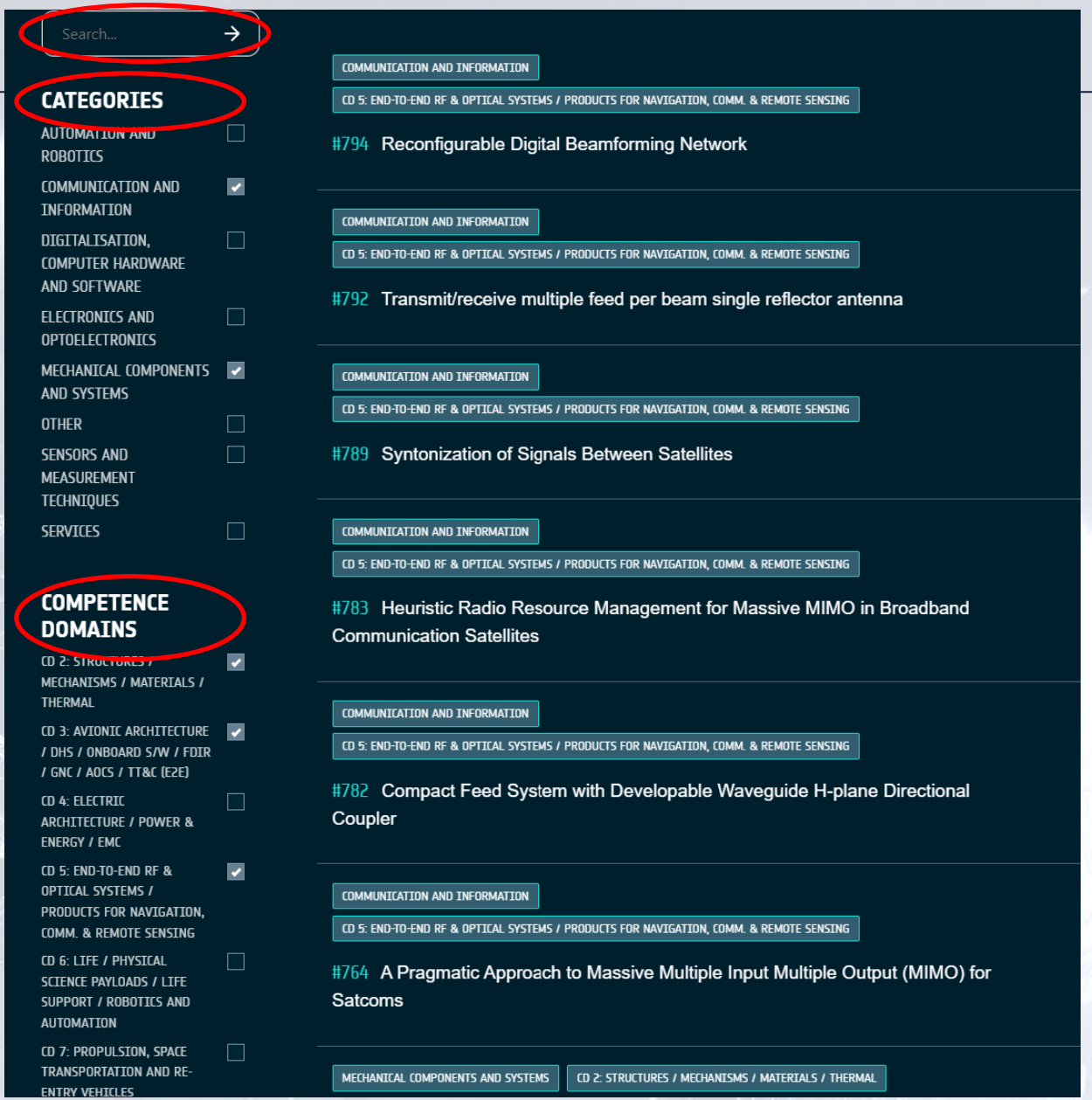
- Non-exclusive, free of charge right of use for **space applications**
- Favorable conditions for **non-space applications**

Non European MS Industry

- Non-exclusive
- Market conditions

ESA Patents Portfolio

www.commercialisation.esa.int/patents



Industry-driven innovation.
How does industry benefit from ESA patented inventions?

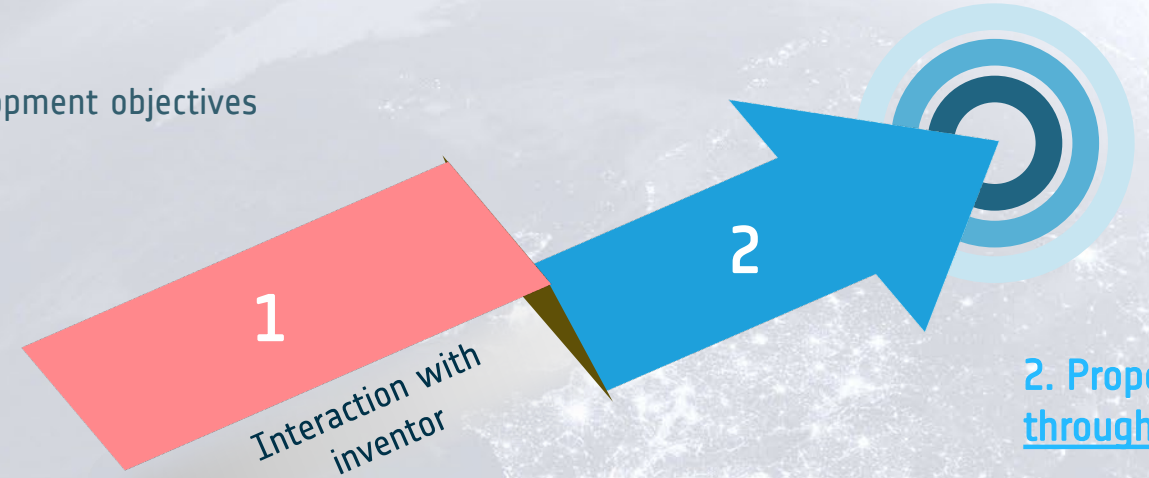
Call for ideas for the Technical and Commercial Maturation of ESA's Inventions

1. Idea Step - OSIP Open Channel:

Open Space Innovation Platform - OSIP - Channel: Open Discovery Ideas Channel (esa.int)

Outline Proposal:

- Field of application.
- Technical benefits and development objectives (bulleted development plan).
- Commercial opportunity.



Funding: 50-175k€ for industry-driven proposals
Implementation: max 18 months
6 inventions proposed every 4 months

2. Proposal Step - competitive procurement through esa-star

Full Proposal:

- Commercial opportunity
  - Market opportunity
- Technical opportunity
  - Related R&D
  - Maturation strategy
- Technical and Commercial Workplan, expected results, MPP
- Deliverables

List of currently proposed patents

PAT Ref.	Title	Abstract	Additional information
537	**Structure for Shielding An Antenna From Radio Interference**	This invention consists of a shield that can be retrofitted to existing GNSS (Global Navigation Satellite Systems) geodetic receivers that allows interference to be controlled, minimised, and even eliminated. This solution could benefit virtually all GNSS geodetic networks worldwide	• Espacenet: EP2987200B1 • PAT 537: Technology description
694	**New Method for Improving the Passband Flatness in a Microwave Planar Filter**	This invention relates to an improved radio frequency pass-band filter for use, for example, in a satellite as part of a microwave communications system. This novel method meets stringent requirements for the passband flatness in a microwave planar filter with compact size. Additional improvements in the spurious response are also achieved.	• Espacenet: EP3853941A1 • PAT 694: Technology description
701	**Signal Overlay Design and Detection for Satellite Communication Channels**	In broadband satellite communications, different methods to improve the spectral efficiency of multi-user satellite systems with two or more co-existing classes of terminals with highly imbalanced link efficiencies exist. A state-of-the art solution is multiplexing, which can cause delay jitter. In the following, an invention redesigning the signal overlay approach will be introduced.	• Espacenet: EP3695534B1 • PAT 701: Technology description
754	**Peak and Valley Current Mode Control Using Double Compensation Ramp**	This invention concerns the field of electrical power supply, including AC/AC, AC/DC, DC/AC and DC/DC power switching converters. It is a closed-loop control concept, primarily relevant to current regulation but also to voltage regulation. It allows to reach the maximum bandwidth frequency, at given switching frequency. In turn power supply products can have better dynamic performances, hence lower mass and cost.	• Espacenet: WO2021063482A1 • PAT 754: Technology description
782	**Compact Feed System with Developable Waveguide H-plane Directional Coupler**	The present invention relates to a novel H-plane coupler, referred to as a rooftop coupler, and more generally as a developable coupler, enabling new or improved microwave devices. The coupler is obtained as a H-plane coupler mapped onto a developable surface, such that the main electric field direction in the two coupled waveguide transmission lines are not parallel, providing a very compact and light solution.	• Espacenet: WO2023274552A1 • PAT 782: Technology description
792	**Transmit/receive multiple feed per beam single reflector antenna**	This invention relates to a novel feed system architecture that provides enhanced performance and/or reduced complexity compared to state-of-the-art solutions of interest in Very and Ultra High Throughput Satellite (V/UHTS) systems.. Combined with a standard reflector, the resulting antenna system is capable of generating a transmit/receive multiple beam coverage with frequency and polarisation reuse having a single reflector aperture and a single feed system.	• Patent application: WO2023143742A1 • PAT 792: Technology Description

MOBILE AUTONOMOUSLY DEPLOYABLE SOLAR POWER GENERATOR

Rapidly deploying on-demand power to communities in need, enabled by ESA tech

Using ESA-patented modular deployment technology, originally designed to deploy very large support structures in space, POLAR Developments (a COMET spin-out) offers near-instantaneous high-capacity photovoltaic generators wherever power is needed, autonomously

esa know.space

Compact, lightweight, 'plug-and-play' solutions that are easily transported, deployed **within hours**, with no specialised operator

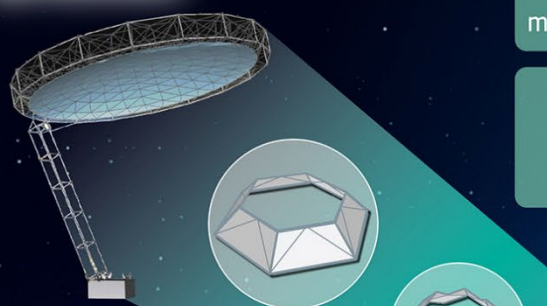
Green Container has **176% more capacity** than competitors in terms of volume to stow a kilowatt peak (kWp/m3)

Green Container energy is **28% cheaper** than competitors in price per kilowatt peak (€/kWp)

New European tech **spin-out company** created, forecasting **20 new jobs by 2026**

Promotes **sustainability** as a **green energy** solution replacing traditional fuel generators

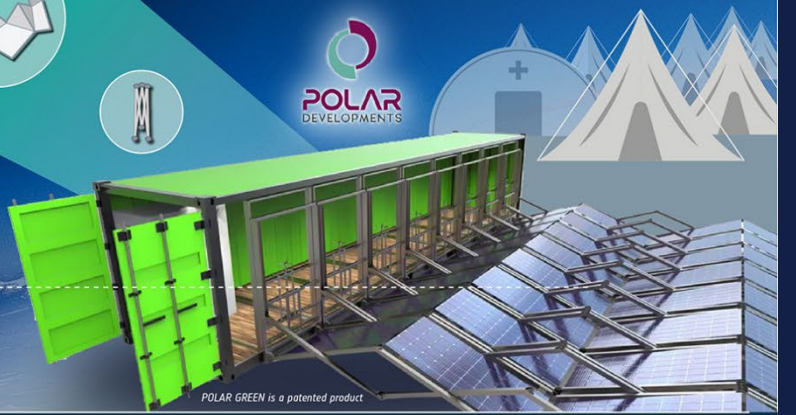
COMET INGENIERIA



Tackles energy poverty for **small, isolated communities or refugee camps** – up to 7 million displaced people have <4 hours of electricity per day

Near-instantaneous power for **disaster response teams** – power outages can last days (earthquakes) or weeks (flooding)

POLAR DEVELOPMENTS



APPLICATION USE CASES

REFUGEE CAMP

EMERGENCY SERVICES

AGRICULTURE

Graphic by Spatial Design Hub

This ESA invention is part of the DVB-S2 & DVB-S2X (Digital Video Broadcasting) patent pools.

It is used by most satellite operators worldwide for television and data broadcasting services.

It allows services such as:

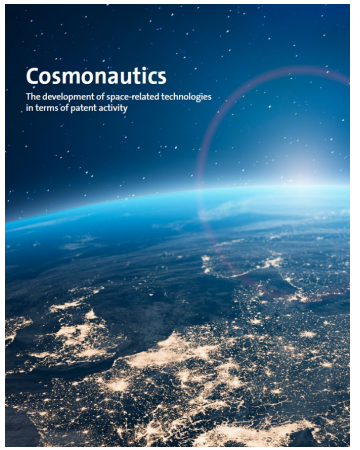
- Digital Satellite News Gathering
- Direct to Home (DTH)
- maritime, civil aviation internet access
- small portable terminals for journalists and other professionals
- etc.

Patent Insight Reports

OBJECTIVES

- Investigate future and emerging space technology trends
- Understanding the evolution of competitiveness and commercialisation in the space sector
- Compliment economic and policy insights with patent data
- Raising awareness about intellectual property rights in the space industry
- Provide exemplary analytical approaches for patent data relevant to space industry

07/2021



11/2021

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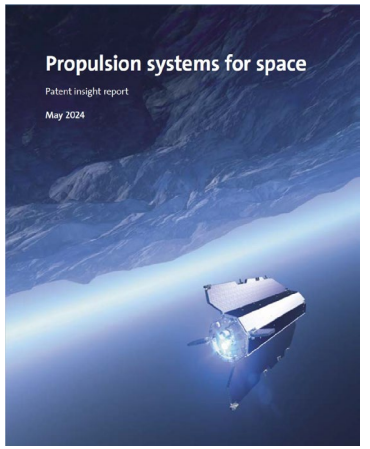

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available at: https://www.epo.org/searching-for-patents/business/patent-insight-reports.html

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recognised by the Open Source Initiative (OSI),

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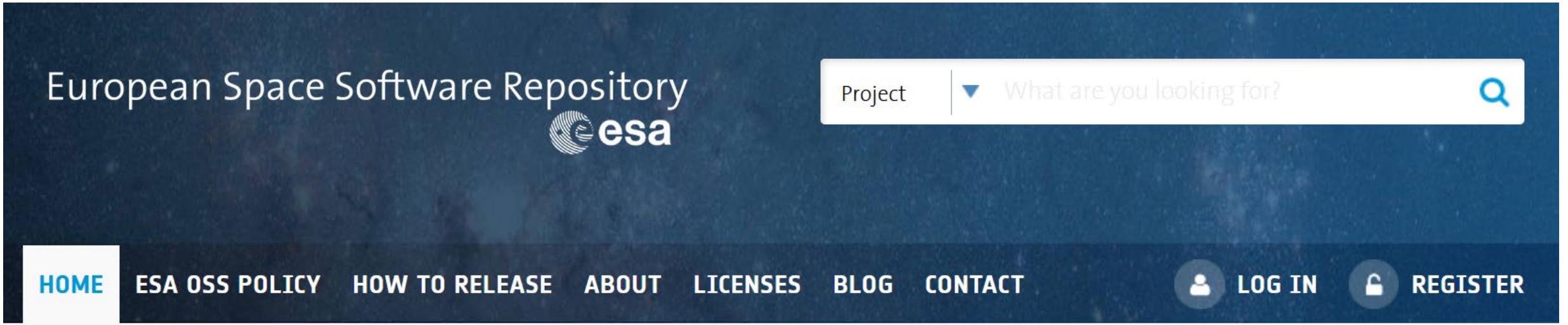

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Only a limited number of projects is visible to the non-registered users.
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→ ODI (OPEN DATA INTERFACE) CLIENT

The Open Data Interface (ODI) provides a common backend and database system for space environment data processing systems at ESA. It provides a generic/common inter...

Licenses: European Space Agency Public License – v2.4 – Weak Copyleft (Type 2)

READ MORE →

Updated on: 15/09/2022 **Created on:** 26/04/2019

Owner: ESA

Links:

1. Source code : ODI_client v5.1.0 tar file
2. Source code : ODI_client v5.1.0 zip file
3. Source code : ODI_client Release 5.1.1 tar file

More links

Tags: Python matlab JAVA Radiation Space environment

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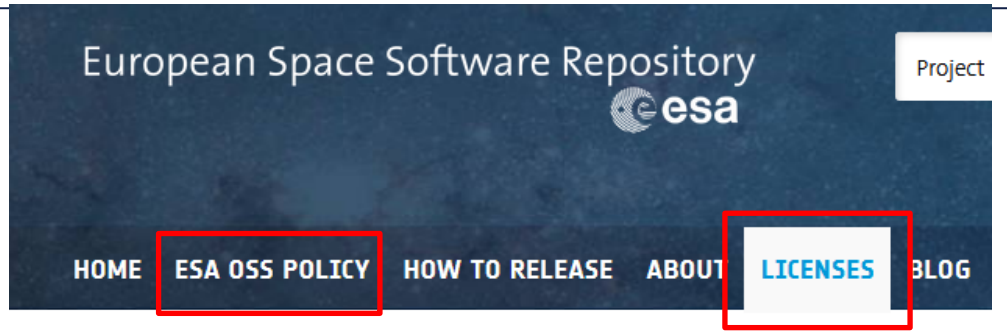

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