

Statement of Requirement (SoR)

1.	Requirement
1.1	Title
	ISTARI OB1 Data provision
1.2	Summary
	<p>The objective of the current package of work is to obtain access to a supply of commercial spaceborne Synthetic Aperture Radar (SAR) data that is representative of that collected from a small SAR platform. The data provision will serve to de-risk and develop a UK MoD Tasking, Collection, Processing, Exploitation and Dissemination (TCPED) ground architecture and support validation of future operational workflows.</p>
1.3	Background
	<p>The purpose of the OB1 project is to deliver an orbital operational concept demonstrator system that can sense, track and attribute challenging targets on Earth, at day or night, and in all weathers. This will include developing and de-risking the required technology for both space and ground segment to support a small SAR platform and to deliver a solution providing freedom of action to UK Defence.</p> <p>As part of the design and development phase of the OB1 project, surrogate data is required to mature the proposed TCPED pipeline. Access to SAR data of a similar quality to that which might be obtainable from an OB1 small SAR platform is essential to assess algorithmic performance in the process of forming basic SAR products from raw data. Furthermore, access to surrogate data with representative formats and data volumes enables pipe-cleaning of proposed ground architecture validating future operational workflows.</p>
1.4	Requirement

The current contract will provide SAR data in the following modes and levels of processing, both from existing library and through ad-hoc tasking.

Collection Modes

MR-1.1 SAR data shall be collected in Stripmap Mode, defined as an imaging mode where the radar beam pointing direction is fixed relative to the satellite's direction of motion during a data collect.

MR-1.2 SAR data shall be collected in Spotlight Mode, defined as an imaging mode where the radar beam is steered to continuously illuminate a single location or terrain patch during data collect.

MR-1.3 SAR data shall be collected in a mode to enable Coherent Change Detection (CCD) production, comprising daily images for a period of up to a week over a location of interest.

Products

MR-2.1 SAR data shall be provided in General Compensated Phase History Data (GCPHD) format.

MR-2.2 SAR data shall be provided in Single Look Complex (SLC) image format.

MR-2.3 SAR data shall be provided in Ground Range Amplitude image format.

MR-2.4 Coherent Change Detection products shall be provided where appropriate.

Tasking

MR-3.1 Tasking of imagery collect shall be achieved in collaboration with the Customer Operations and Satellite Planning Specialists through both the ICEYE Standard Order tasking framework and the Custom Order tasking framework depending on the task.

MR-3.2 It shall be possible to task imagery collect with the ability to modify the following parameters:

MR-3.2.1 Area of Interest Specification, either as a lat/lon pair in WGS84 coordinates or KMZ.

MR-3.2.2 Imaging mode (e.g. Spot/Strip)

MR-3.2.3 Acquisition window (local time window of up to 2 days when imagery needs to be collected), i.e. *within an interval of two days we require the satellite to capture the data.*

MR-3.2.4 Incidence angle of collect

MR-3.3 ICEYE shall maintain a log of all tasking requests and link to collections received. This should be updated regularly and accessible to Dstl on request.

Data Dissemination

MR-4 Data shall be delivered through the ICEYE specified SFTP site with email notification of product delivery.

Data User Rights

MR-5 Dstl shall have full user rights of the delivered data to enable sharing with academia, industry and other UK government departments for algorithm development and feature extraction.

Generate, develop, implement and test internal DSTL processing and exploitation frameworks to yield the following products. The ICEYE level 1 and 2 derivatives will serve for comparative evaluations. Moreover, DSTL will utilise SLC, GRA, CCD for the development and testing of ATR routines.

GCPHD → SLC → GRA

GCPHD → SLC → CCD

GCPHD → SLC → XIF/AIF

GCPHD → SLC → VideoSAR

All the following institutes may receive ICEYE GCPHD, ICEYE SLC, ICEYE GRA, ICEYE CCD and DSTL generated products using ICEYE GCPHD and ICEYE SLC (i.e. DSTL GRA, DSTL CCD, DSTL XIF/AIF, and DSTL VideoSAR). Moreover, products developed from internal DSTL ATR processing frameworks maybe shared.

UK Academic Institutes	UK Industry
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]
[REDACTED]	

	<p>All the organisations above have (or will likely to have) commercial contracts with Dstl on the OB1 project.</p> <p>Anything shared with International MoU's is protected under usage rights for further release and commercial advantage, as per EULA.</p> <p>We also require the right to share with other UK Government Departments and wider MoD.</p>
1.5	Options or follow on work <i>(if none, write 'Not applicable')</i>
	Not Applicable

1.6	Deliverables & Intellectual Property Rights (IPR)																											
Ref.	Title	Due by	Format	TRL *	Expected classificat ion (subject to change)	What information is required in the deliverable	IPR DEFCON/ Condition (Commercial to enter later)																					
D1-A	Back ordered imagery from archive to help with PED chain development	Initial Delivery by 31/05/22	General Compensated Phase History Data (GCPHD) Single Look Complex (SLC) image Ground Range Amplitude image (GRA)	N/A	O	Proposed content requirement - TBC <table><tr><th>Data / Derivative</th><th>Imaging Mode</th><th>How Many</th></tr><tr><td>Level 0 - GCPHD</td><td>Spotlight</td><td>15</td></tr><tr><td>Level 0 - GCPHD</td><td>Stripmap</td><td>15</td></tr><tr><td>Level 1 - SLC</td><td>Spotlight</td><td>15</td></tr><tr><td>Level 1 - SLC</td><td>Stripmap</td><td>15</td></tr><tr><td>Level 1 - GRD</td><td>Spotlight</td><td>15</td></tr><tr><td>Level 1 - GRD</td><td>Stripmap</td><td>15</td></tr></table>	Data / Derivative	Imaging Mode	How Many	Level 0 - GCPHD	Spotlight	15	Level 0 - GCPHD	Stripmap	15	Level 1 - SLC	Spotlight	15	Level 1 - SLC	Stripmap	15	Level 1 - GRD	Spotlight	15	Level 1 - GRD	Stripmap	15	DEFCON 705 Full Rights, (Edn 21/06) shall apply with the following clarification: The "Authority" as referenced within this Condition at clauses 12, 13, 30, 31 shall be deemed to be any United Kingdom Government Department. In regard to background IP in data, in D1-A: Please see MR-5 in Section 1.4 above, which sets out our minimum use and sharing requirements in data and information we derive from it.
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Level 1 - GRD	Spotlight	15																										
Level 1 - GRD	Stripmap	15																										

D1-B	Understanding GCPHD	31/05/22	Virtual delivery, and electronic delivery of presentation slides	N/A	O	A virtual mini-training course to educate how we read the GCPHD successfully and how it differs from the NGA CPHD format. A set of PowerPoint (or equivalent) presentation slides illustrating the technical content of the training course.	DEFCON 705 Full Rights, (Edn 21/06) shall apply with the following clarification: The "Authority" as referenced within this Condition at clauses 12, 13, 30, 31 shall be deemed to be any United Kingdom Government Department. Regarding background IP in data – if any applies: Please see MR-5 in Section 1.4 above, which sets out our minimum use and sharing requirements in															
D2	1 x 7 day DCGTR stack over a land environment of interest (TBD)	31/05/22	General Compensated Phase History Data (GCPHD) Single Look Complex (SLC) image Ground Range Amplitude image (GRA) Coherent Change Detection (CCD) image	N/A	O	Proposed content requirement - TBC <table><tr><th>Derivative</th><th>Imaging Mode</th><th>Environment</th></tr><tr><td>Level 0 - GCPHD</td><td rowspan="4">Spotlight</td><td rowspan="4">Maritime</td></tr><tr><td>Level 1 – SLC</td></tr><tr><td>Level 1 – GRD</td></tr><tr><td>Level 2 - CCD</td></tr><tr><td>Level 0 - GCPHD</td><td rowspan="4">Stripmap</td><td rowspan="4">Maritime</td></tr><tr><td>Level 1 – SLC</td></tr><tr><td>Level 1 – GRD</td></tr><tr><td>Level 2 - CCD</td></tr></table>		Derivative	Imaging Mode	Environment	Level 0 - GCPHD	Spotlight	Maritime	Level 1 – SLC	Level 1 – GRD	Level 2 - CCD	Level 0 - GCPHD	Stripmap	Maritime	Level 1 – SLC	Level 1 – GRD	Level 2 - CCD
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D3	1 x 7 day DCGTR stack over a maritime environment of interest (TBD)	31/05/22	General Compensated Phase History Data (GCPHD) Single Look Complex (SLC) image Ground Range Amplitude image (GRA) Coherent Change Detection (CCD) image	N/A	O	Proposed content requirement - TBC <table><tr><th>Derivative</th><th>Imaging Mode</th><th>Environment</th></tr><tr><td>Level 0 - GCPHD</td><td rowspan="4">Spotlight</td><td rowspan="4">Land</td></tr><tr><td>Level 1 – SLC</td></tr><tr><td>Level 1 – GRD</td></tr><tr><td>Level 2 - CCD</td></tr><tr><td>Level 0 - GCPHD</td><td rowspan="4">Stripmap</td><td rowspan="4">Land</td></tr><tr><td>Level 1 – SLC</td></tr><tr><td>Level 1 – GRD</td></tr><tr><td>Level 2 - CCD</td></tr></table>	Derivative	Imaging Mode	Environment	Level 0 - GCPHD	Spotlight	Land	Level 1 – SLC	Level 1 – GRD	Level 2 - CCD	Level 0 - GCPHD	Stripmap	Land	Level 1 – SLC	Level 1 – GRD	Level 2 - CCD	
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D4	1 x 7 day DCGTR stack over a forest environment of interest (TBD)	31/05/22	General Compensated Phase History Data (GCPHD) Single Look Complex (SLC) image Ground Range Amplitude image (GRA) Coherent Change Detection (CCD) image	N/A	O	Proposed content requirement - TBC <table><tr><th>Derivative</th><th>Imaging Mode</th><th>Environment</th></tr><tr><td>Level 0 - GCPHD</td><td rowspan="3">Spotlight</td><td rowspan="3">Forest</td></tr><tr><td>Level 1 – SLC</td></tr><tr><td>Level 1 – GRD</td></tr><tr><td>Level 2 - CCD</td><td></td><td></td></tr></table>	Derivative	Imaging Mode	Environment	Level 0 - GCPHD	Spotlight	Forest	Level 1 – SLC	Level 1 – GRD	Level 2 - CCD			data and information we derive from it.
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Level 1 – GRD																		
Level 2 - CCD																		
D5	Ad hoc tasking to align with CII projects	30/11/22		N/A	O	Ad-hoc tasking												

***Technology Readiness Level required**

1.7	Standard Deliverable Acceptance Criteria
	No additional criteria to standard T&C's'.
1.8	Specific Deliverable Acceptance Criteria
	<p>Acceptance will be by the nominated Technical Partner at Dstl.</p> <p>Criteria-</p> <ul style="list-style-type: none"> • Deliverable is in the correct format(s) • Covers the agreed area of interest/Tasking request • Resolution is of suitable quality

2.	Quality Control and Assurance
2.1	Quality Control and Quality Assurance processes and standards that must be met by the contractor
	<p><input type="checkbox"/> ISO9001 (Quality Management Systems)</p> <p><input type="checkbox"/> ISO14001 (Environment Management Systems)</p> <p><input type="checkbox"/> ISO12207 (Systems and software engineering — software life cycle)</p> <p><input type="checkbox"/> TickITPlus (Integrated approach to software and IT development)</p> <p><input type="checkbox"/> Other: (Please specify below)</p>
2.2	Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement
	None

3.	Security	
3.1	Highest security classification	
	Of the work	[REDACTED]
	Of the Deliverables/ Output	[REDACTED]
3.2	Security Aspects Letter (SAL)	
	Not applicable If yes, please see SAL reference- <i>Enter iCAS requisition number once obtained</i>	
3.3	Cyber Risk Level	
	[REDACTED]	
3.4	Cyber Risk Assessment (RA) Reference	
	[REDACTED] If stated, this must be completed by the contractor before a contract can be awarded. In accordance with the [REDACTED] please complete the Cyber Risk Assessment available at [REDACTED]	

4.	Government Furnished Assets (GFA)				
GFA to be Issued - No <i>If 'yes' – add details below. If 'supplier to specify' or 'no,' delete all cells below.</i>					
GFA No.	Unique Identifier/ Serial No	Description: <i>Classification, type of GFA (GFE for equipment for example), previous MOD Contracts and link to deliverables</i>	Available Date	Issued by	Return Date or Disposal Date (T0+) <i>Please specify which</i>

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5.	Proposal Evaluation criteria
5.1	Technical Evaluation Criteria
	Compliance with the stated requirements
5.2	Commercial Evaluation Criteria
	Commercial Review – intended to be a Single Source Procurement. Framework evaluation criteria as per T&C's may apply.