# European ATM Service Description for the SNOWTAM Service

| Document information | |
|---|---|
| Project Title | Information Service Modelling deliverables |
| Project Number | 08.03.10 |
| Project Manager | NORACON |
| Deliverable Name | European ATM Service Description for the SNOWTAM Service |
| Deliverable ID | D65 |
| Edition | 00.02.01 |
| Template Version | 02.00.02 |
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| DFS, EUROCONTROL, NORACON, NATMIG, FINMECCANICA, FREQUENTIS, THALES, ENAIRE, DSNA, INDRA, SEAC and ENAV | |

***Abstract***

The SNOWTAM service covers the dissemination of standard ICAO SNOWTAM bulletins over SWIM. This service aims therefore at bringing the benefits of increased interoperability via SWIM to the MET and Aeronautical Communities of Interest. Service design has been performed in the context of Service Activity SVA003 entailing Airport Meteorological and Surface Contamination services.

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| Rational for rejection |
|---|
| |

# Document History

| Edition | Date | Status | Author | Justification |
|---|---|---|---|---|
| 00.00.01 | 26/05/2014 | Draft | ████ | New document |
| 00.00.02 | 26/05/2014 | Revised Draft | ████ | Addressed SVA partners' review |
| 00.01.00 | 29/05/2014 | Final | ████ | T6 external member's review, minor fixings after verification process. |
| 00.01.01 | 09/09/2014 | Final | ████ | Updated to reflect SJU assessment |

| 00.01.01 | 30/11/2015 | Final | | Changed delivery ID |
|---|---|---|---|---|
| 00.02.00 | 30/05/2016 | Final | | Updated to ISRM Foundation 00.07.00 and based on requirements for ISRM 2.0 |
| 00.02.01 | 20/07/2016 | Final update | | Updated according to 08.03.10-D65_SJU_Assessment_report_08.03.10_response |

## Intellectual Property Rights (foreground)

This deliverable consists of SJU foreground.

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# Executive summary

This document is the result of the "Service Design" step of the B.4.3 Working Method on Services for the SNOWTAM Service. The document provides a comprehensive logical specification for system engineers on how to realize the dissemination of MET data over SWIM.

The SNOWTAM service covers the dissemination of standard ICAO SNOWTAM bulletins over SWIM to a wide range of subscribing ATM users. This service aims therefore at bringing the benefits of increased interoperability via SWIM to the MET and Aeronautical Communities of Interest. Service design has been performed in the context of the SESAR Service Activity "SVA003" entailing Airport Meteorological and Surface Contamination services.

SVA003 has happened in the frame of the SESAR MET Coordination Group and has seen the participation of a good number of different partners, both Operational and System, from OFA5.1.1 (WP6 and WP12) and WP11.2.

Edition 1.0 for this SDD first published as part of ISRM 1.3. It was then updated to 1.1. for ISRM 1.4 and used as reference for SESAR validation exercise EXE-06.03.01-VP-669 (SESAR R5). This edition wraps all quality improvements for delivery with the final SESAR ISRM 2.0.

# 1 Introduction

## 1.1 Purpose of the document

The purpose of this SDD is to provide a complete logical description of the SNOWTAM Service, its operational context, its basic architectural features, its dynamical aspects, its operations and the data provided. All these aspects are presented as model views according to the ISRM UML EATMA Profile, which organize knowledge about a service into views inspired by the NAF Framework.

This SDD serves as a complement to a model based description and supports the configuration management process by providing well-defined baselines.

The logical service model presented in this SDD edition is part of the ISRM 2.0 release, and provides a blueprint which service developers must follow in order to create SWIM-Compliant implementations of the SNOWTAM Service.

The service presented will be a part of the Service Portfolio. The Service Portfolio presents all services that are available or are planned to become available at a high level.

## 1.2 Intended readership

SESAR Deployment Manager, SCG, the OPS and SYS projects participating in the SVA003 Team, Service Architects, Information Architects, System Engineers and Developers in pursuing architecting, design and development activities.

## 1.3 Inputs from other projects

The main inputs are the OFA 5.1.1 OSED ([1] and [2]) and the ICAO Annex 3.

## 1.4 Glossary of terms

N/A

## 1.5 Acronyms and Terminology

### 1.5.1 Acronyms

| Term | Definition |
|------|------------|
| ADD | Architecture Description Document |
| ATM | Air Traffic Management |
| CC | Capability Configuration |
| EATMA | European Air Traffic Management Architecture |
| E-ATMS | European Air Traffic Management System |
| FAA | Federal Aviation Administration |
| IER | Information Exchange Requirement |

| Term | Definition |
|------|-----------|
| **ISRM** | Information Service Reference Model |
| **MG** | ISRM Modelling Guidelines |
| **NAF** | NATO Architecture Framework |
| **NSOV** | NATO Service Oriented View |
| **NOV** | NATO Operational View |
| **NSV** | NATO System View |
| **OSED** | Operational Service and Environment Definition |
| **QoS** | Quality of Service |
| **SAR** | Service Allocation Report |
| **SCG** | Service Coordination Group |
| **SDD** | Service Description Document |
| **SESAR** | Single European Sky ATM Research Programme |
| **SESAR Programme** | The programme which defines the Research and Development activities and Projects for the SJU. |
| **SIR** | Service Identification Report |
| **SJU** | SESAR Joint Undertaking (Agency of the European Commission) |
| **SJU Work Programme** | The programme which addresses all activities of the SESAR Joint Undertaking Agency. |
| **SWIM** | System Wide Information Management |
| **UML** | Unified Modelling Language |
| **V&V** | Validation and Verification |
| **WSDL** | Web Services Definition Language |
| **XSD** | XML Schema Definition |

## 1.5.2 Terminology

| Term | Definition | Source |
|------|-----------|--------|
| **Capability** | Capability is the ability of one or more of the enterprise's resources to deliver a specified type of effect or a specified course of action to the enterprise stakeholders. | EATMA Guidance Material [13] |

| Term | Definition | Source |
|---|---|---|
| **Capability Configuration** | A Capability Configuration is a combination of Roles and Systems configured to provide a Capability derived from operational and/or business need(s) of a stakeholder type. | EATMA Guidance Material [13] |
| **Node** | A logical entity that performs Activities. Note: nodes are specified independently of any physical realisation. | EATMA Guidance Material [13] |
| **Service** | The contractual provision of something (a non-physical object), by one, for the use of one or more others. Services involve interactions between providers and consumers, which may be performed in a digital form (data exchanges) or through voice communication or written processes and procedures. | EATMA Guidance Material [13] |
| **Service function** | A type of activity describing the functionality of a Service. | EATMA Guidance Material [13] |
| **Service interface** | The mechanism by which a service communicates | EATMA Guidance Material [13] |

# 2 Service identification

| Name | SNOWTAM |
|---|---|
| ID | {BF398C97-F92A-41bd-B64B-E274D101094B} |
| Version | 2.0 |
| Keywords | SNOWTAM, NOTAM, Surface contamination. |
| Architect(s) | ████████████████ FINMECCANICA |

| Lifecycle status | Date | Reference |
|---|---|---|
| Identified | 12/12/2013 | See reference [3] |
| Allocated | 21/02/2014 | See reference [4] |
| Designed | 31/05/2016 | This document |
| Validated | 03/03/2016 | See reference [16] |
| IOC | *Date for Initial Operational Capability* | *Reference to technical enabler hosting the service in the ATM master plan* |
| FOC | *Date for Full Operational Capability* | *Reference to technical enabler hosting the service in the ATM master plan* |

# 3 Operational and Business context

The SNOWTAM is special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format. It is formatted according to ICAO Annex 15 provisioning [14].

The requirements for the provision of a service for dissemination of the SNOWTAM bulletins of interest for airport operations and the full business and operational context for this service is given by the P06.05.04 OSED[1][2]. It is also been described in the SVA003 Service Identification Report (SIR) [3] and has been elaborated further in the SVA003 Service Allocation Report (SAR) [4]. These documents in particular have already covered:

- a description of what ATM goals and problems the service addresses;
- business level capabilities that the service will realise;
- the positioning of the service into the SESAR technical Architecture (ADD and TADs);
- the link to Operational Improvements;
- the list of IERs, operational and non-functional requirements from source documents;
- the relevance to the SESAR MET Coordination Group, and the linkage to the "2013 MET Issue Resolution";
- the prototyping and validation triggers from within the Programme.

## 3.1 Information Exchange Requirements



**class NAV SNOWTAM Requirements Traceability**

| | |
|---|---|
| Name: | NAV SNOWTAM Requirements Traceability |
| Author: | SVA003 ▮▮▮▮▮ |
| Version: | 2.0 |
| Created: | 17/04/2014 00:00:00 |
| Updated: | 10/05/2016 00:00:00 |

«Service»
**SNOWTAM**

**tags**

megaid =

«Satisfy»

SNOWTAM provisioning

**tags**
megaid =
ref = IER-06.05.04-OSED-MET1.0007
refType = Information exchange requirement
Text =
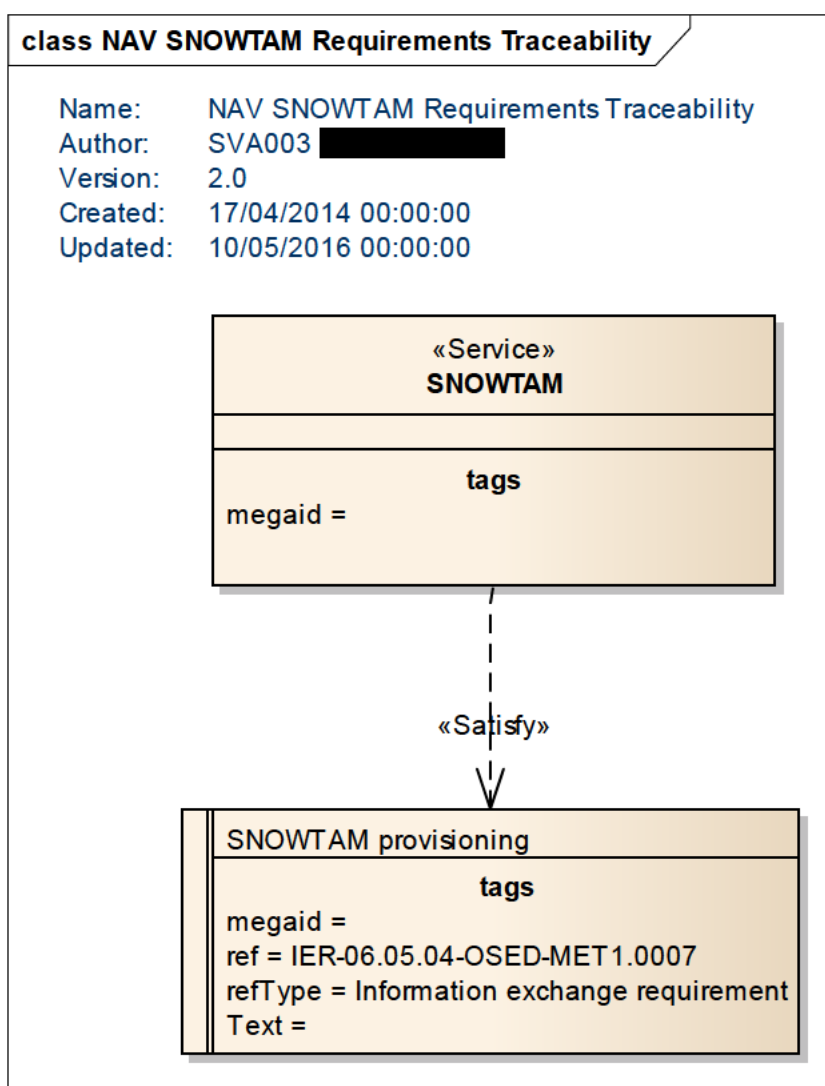
**Figure 1: NAV SNOWTAM Service Requirements Traceability IER Diagram**

## 3.2 Other Requirements

### 3.2.1 Non-Functional Requirements

N/A.

### 3.2.2 Relevant Industrial Standards

N/A.

### 3.2.3 Nodes

The EATMA nodes specified in the service are shown in the NOV-2 SNOWTAM Service To Nodes Mapping diagram below:
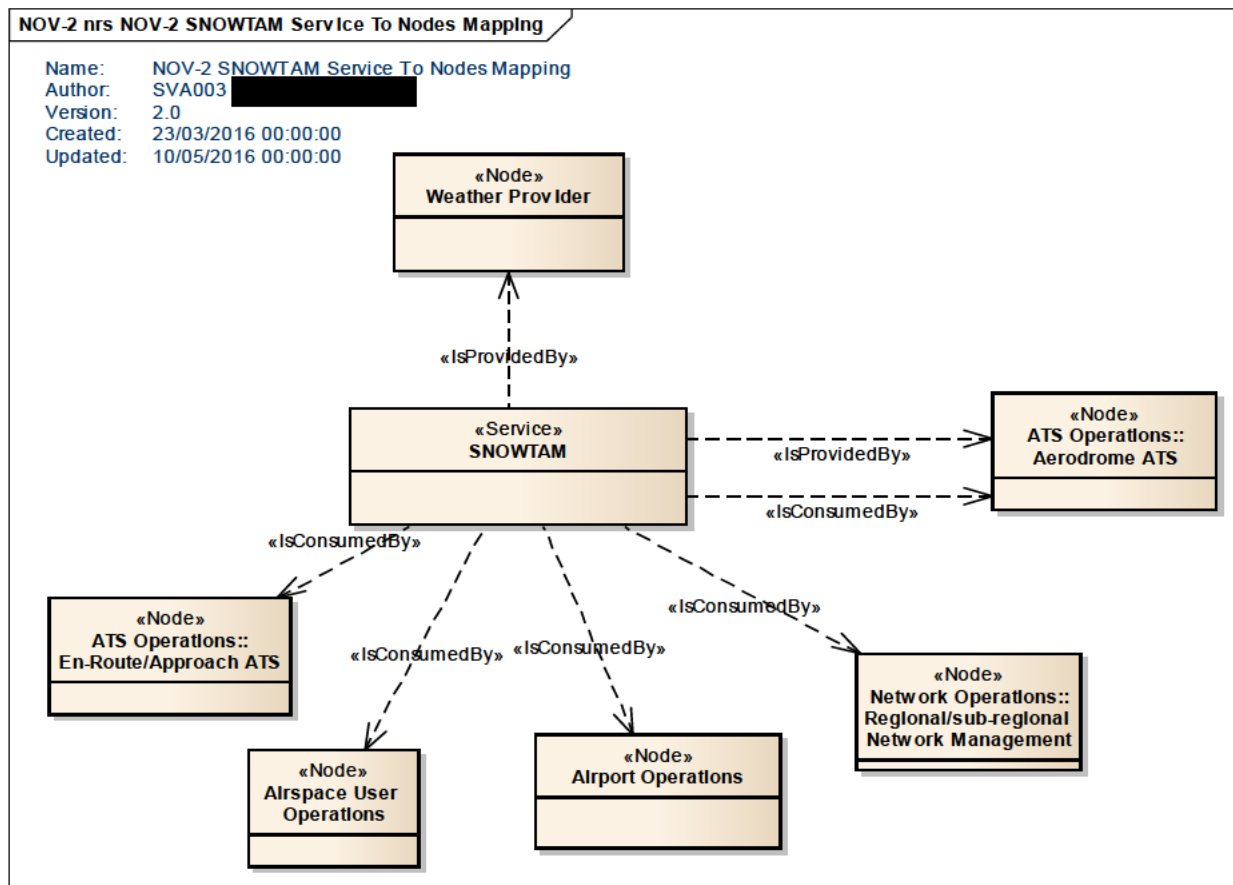
**Figure 2: NOV-2 SNOWTAM Service to Nodes Mapping diagram**

# 4 Service overview

## 4.1 Service Taxonomy

The service taxonomy is described in the ISRM Service Portfolio document [5].

## 4.2 Service Levels (NfRs)

N/A.

## 4.3 Service Functions and Capabilities



**NSOV-4 NSOV-4 SNOWTAM Service to Operational Activities Mapping**

Name:     NSOV-4 SNOWTAM Service to Operational Activities Mapping
Author:   SVA003 ███████
Version:  2.0
Created:  15/04/2014 00:00:00
Updated:  10/05/2016 00:00:00
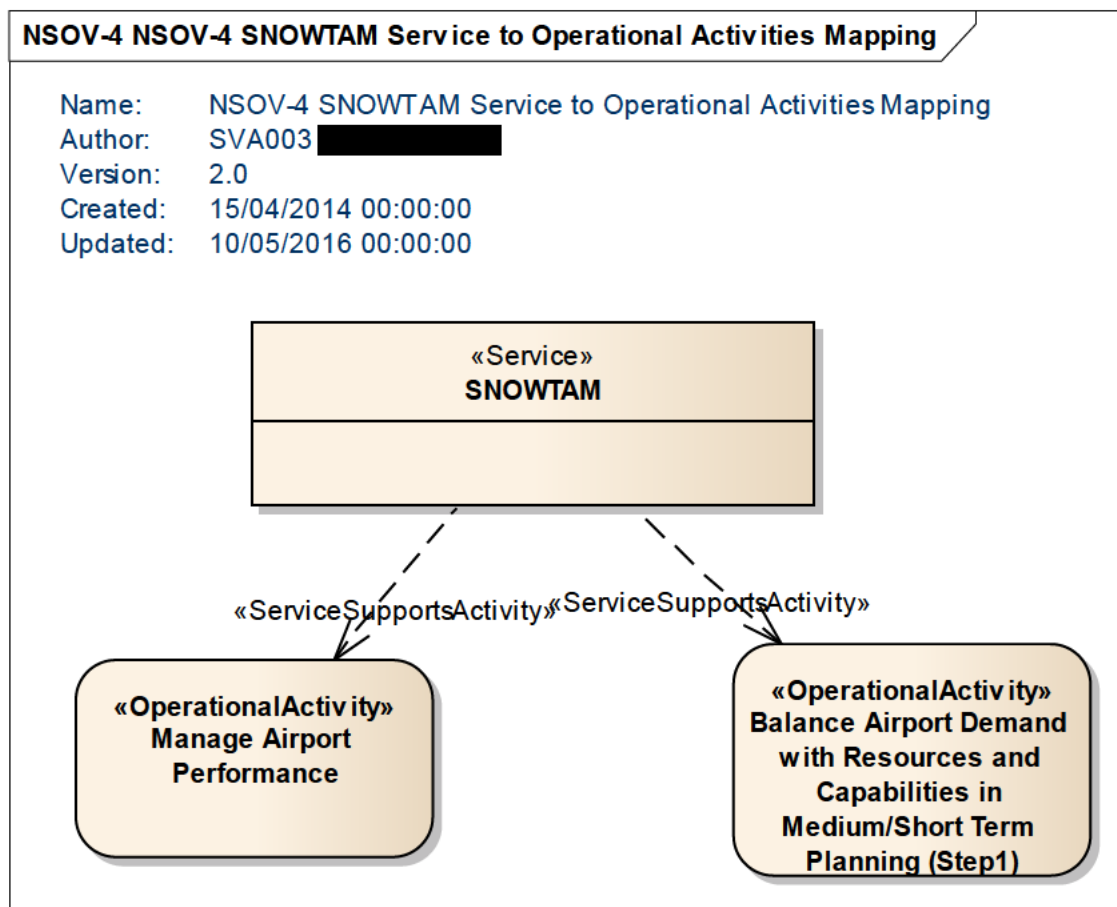
**Figure 3: NSOV-4 SNOWTAM Service to Operational Activities Mapping diagram**

For the service to capabilities mapping, see the NSOV-2 Service Interface Definition diagram in Section 4.4.

## 4.4 Service Interfaces

The service is based on a single pub/sub interface. The SNOWTAMPublisher service interface definition allows the consumer to subscribe or unsubscribe to the data, while the SNOWTAMSubscriber service interface definition allows the service provider to publish the message containing the data. The messages for subscription and unsubscription are only logical abstract wrappers, since the actual management of the publication mechanism is done at the level of the SWIM Technical Infrastructure.

Name: NSOV-2 SNOWTAM Interface Definition
Author: SVA003
Version: 2.0
Created: 23.03.2016 00:00:00
Updated: 26.05.2016 00:00:00
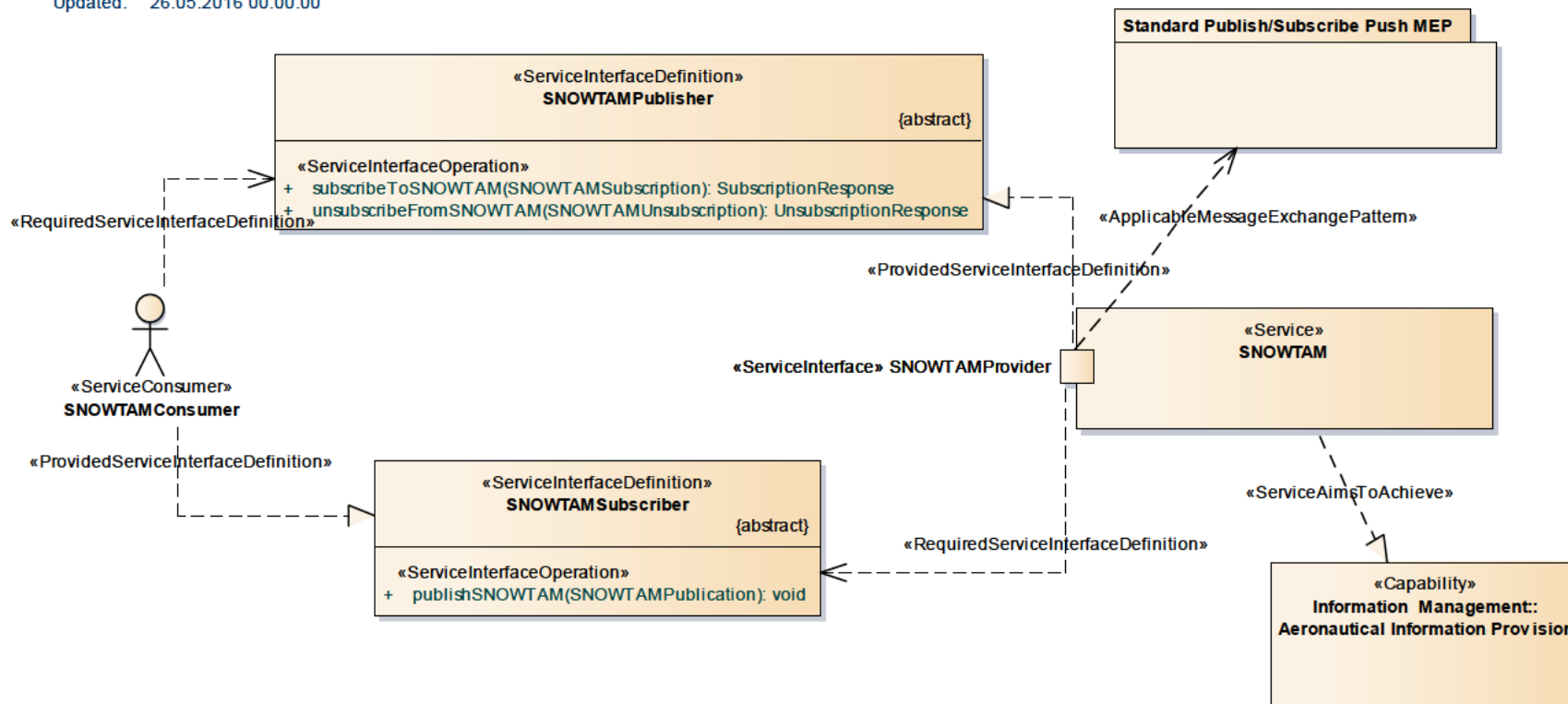
**Figure 4: NSOV-2 SNOWTAM Service Interface Definition diagram**

| ServiceInterface | ServiceInterfaceDefinition | ServiceInterfaceOperation | Role |
|---|---|---|---|
| SNOWTAMProvider | SNOWTAMPublisher | subscribeToSNOWTAM | provided |
| SNOWTAMProvider | SNOWTAMPublisher | unsubscribeFromSNOWTAM | provided |
| SNOWTAMProvider | SNOWTAMSubscriber | publishSNOWTAM | required |

**Table 1: Service Interfaces**

# 5 Service interface specifications

## 5.1 Service Interface SNOWTAMProvider

This is the only interface for this service. It implements the Standard Publish/Subscribe Push message exchange pattern, and exposes two service interface definitions, one for the provider and one for the consumer side.

### 5.1.1 Service Interface Definition SNOWTAMPublisher

This interface definition enables a consumer to subscribe or unsubscribe from the provision of the service message.

#### 5.1.1.1 Operation subscribeToSNOWTAM

The service operation enables the service consumer to subscribe to a particular SNOWTAM bulletin.

##### 5.1.1.1.1 Operation Functionality

The service operation enables the consumer to select the desired airport for which he desires a SNOWTAM bulletin.

##### 5.1.1.1.2 Operation Parameters

The operation is modelled with a return type representing the generic outcome for a subscription.

| Element Name | Author | Notes |
|---|---|---|
| SNOWTAMSubscription | SVA003 | Message for the Subscription |
| SubscriptionResponse | SVA003 | Reply to the subscription operation. |

**Table 2: Payload elements for the subscribeToSNOWTAM operation**

#### 5.1.1.2 Operation unsubscribeFromSNOWTAM

The service operation enables the service consumer to unsubscribe from the service.

##### 5.1.1.2.1 Operation Functionality

The service operation enables the consumer to select the desired airport for which he does not want SNOWTAM bulletins anymore.

##### 5.1.1.2.2 Operation Parameters

The operation is modelled with a return type representing the generic outcome for an unsubscription.

| Element Name | Author | Notes |
|---|---|---|
| SNOWTAMUnsubscription | SVA003 | Message for the Unsubscription |
| UnsubscriptionResponse | SVA003 | Reply to the unsubscription operation. |

**Table 3: Payload elements for the unsubscribeFromSNOWTAM operation**

## 5.1.2 Service Interface Definition SNOWTAMSubscriber

This interface definition enables the provider to publish the SNOWTAM.

### 5.1.2.1 Operation publishSNOWTAM

The service operation enables the service consumer to receive a notification for a new SNOWTAM which he has subscribed to.

#### 5.1.2.1.1 Operation Functionality

The service operation simply enables the consumer to access a pre-subscribed new SNOWTAM available from the MET provider.

#### 5.1.2.1.2 Operation Parameters

The operation is modelled without a return type. The operation has a single input parameter SNOWTAMPublication which represents the full service payload.

| Element Name | Author | Notes |
|---|---|---|
| SNOWTAMPublication | SVA003 | Publication message |

**Table 4: Payload element for the publishSNOWTAM operation**

The relevant EntityItems with attributes and relationships are rendered in Figure 5 below. Details for the EntityItems and the tracing to AIRM are provided in Table 5 below. The tagged values show the linked AIRM class.
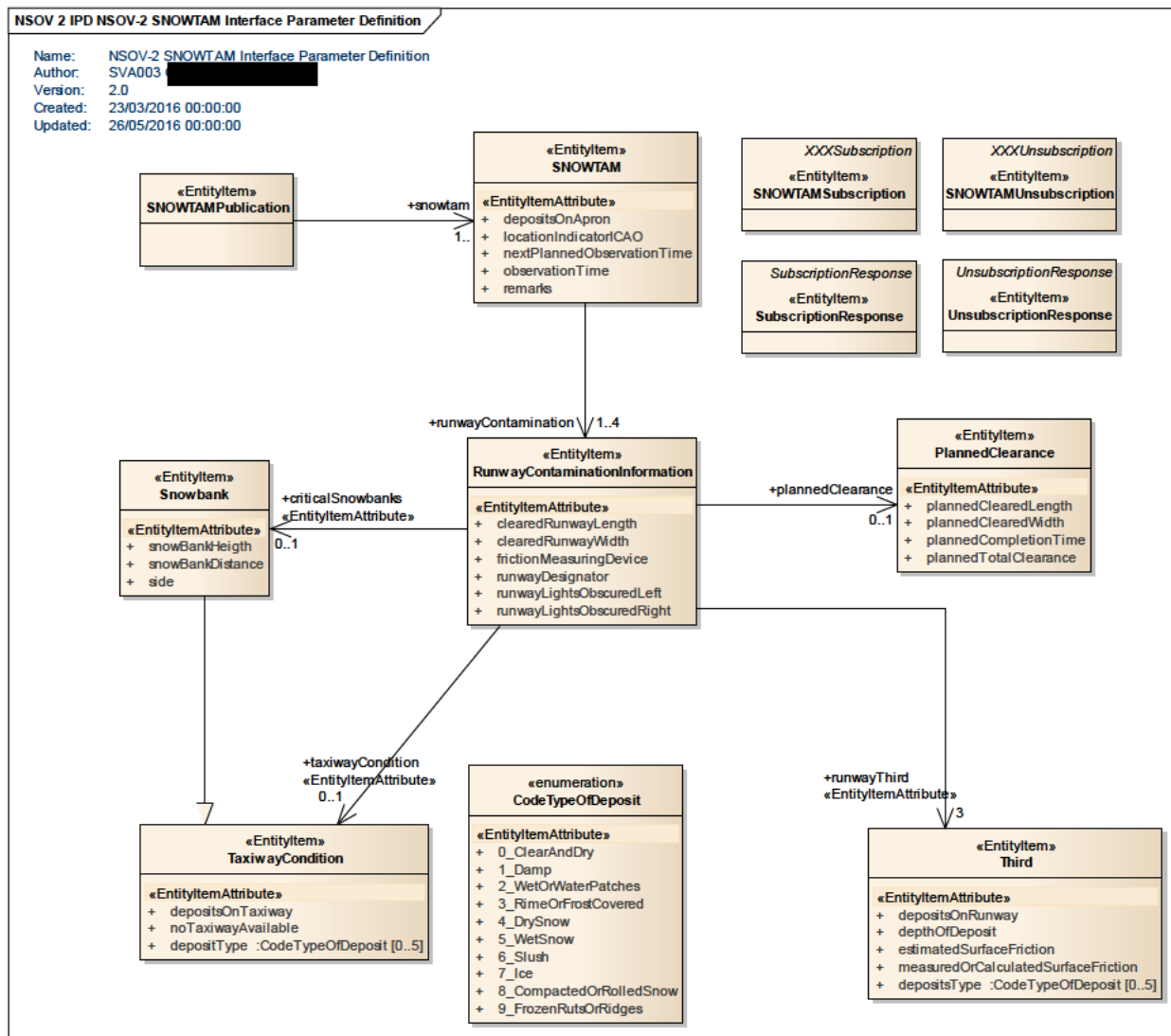
**Figure 5: NSOV-2 SNOWTAM Service Interface Parameter Definition diagram**

| Element Name | | | Author | | Notes | |
|---|---|---|---|---|---|---|
| CodeTypeOfDeposit | | | SVA003 ███████ | | An enumeration of substance types, which can contaminate airport/heliport movement areas. | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 0_ClearAndDry | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@CLEAR_AND_DRY | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 1_Damp | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@DAMP | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 2_WetOrWaterPatches | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@WET | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 3_RimeOrFrostCovered | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@RIME_OR_FROST_COVERED | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 4_DrySnow | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@DRY_SNOW | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 5_WetSnow | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@WET_SNOW | | |
| | **Attribute Name** | | **Type** | | **Notes** | |
| | 6_Slush | | | | | |
| | | **Tagged Value Name** | | **Value** | | |
| | | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@SLUSH | | |
| | **Attribute Name** | | **Type** | | **Notes** | |

| | | | |
|---|---|---|---|
| 7_Ice | | | |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@ICE |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | 8_CompactedOrRolledSnow | | |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@COMPACTED_OR_ROLLED_SNOW |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | 9_FrozenRutsOrRidges | | |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType@FROZEN_RUTS_OR_RIDGES |

| **Element Name** | | **Author** | **Notes** |
|---|---|---|---|
| PlannedClearance | | SVA003 ▮▮▮▮▮ | Information about further planned clearance. |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | plannedClearedLength | | Item L according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@furtherClearanceLength |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | plannedClearedWidth | | Item L according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@furtherClearanceWidth |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | plannedCompletionTime | | Item M according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@furtherClearanceTime |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | plannedTotalClearance | | Item L according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Subje |

| | | ctFields:AirTrafficOperations:AerodromeOperations:Surface Contamination:RunwayContamination@furtherClearanceLength |
|---|---|---|

| **Element Name** | | **Author** | | **Notes** |
|---|---|---|---|---|
| RunwayContaminationInformation | | SVA003 ▮▮▮▮▮ | | Contains the SNOWTAM items for one dedicated runway. |

| | **Attribute Name** | **Type** | | **Notes** |
|---|---|---|---|---|
| | clearedRunwayLength | | | Item D according to ICAO Annex 15, Appendix 2. |

| | | **Tagged Value Name** | **Value** |
|---|---|---|---|
| | | CLDMSemanticTrace | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@clearedLength |

| | **Attribute Name** | **Type** | | **Notes** |
|---|---|---|---|---|
| | clearedRunwayWidth | | | Item E according to ICAO Annex 15, Appendix 2. |

| | | **Tagged Value Name** | **Value** |
|---|---|---|---|
| | | CLDMSemanticTrace | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@clearedWidth |

| | **Attribute Name** | **Type** | | **Notes** |
|---|---|---|---|---|
| | frictionMeasuringDevice | | | Item H according to ICAO Annex 15, Appendix 2.<br><br>Friction measurements on each third of the runway and friction measuring device. Measured or calculated coefficient (two digits) or, if not available, estimated surface friction (single digit) in the order from the threshold having the lower runway designation number. Insert a code 9 when surface conditions or available friction measuring device do not permit a reliable surface friction measurement to be made. Use the following abbreviations to indicate the type of friction measuring device used:<br>BRD Brakemeter-Dynometer<br>GRT Grip Tester<br>MUM Mu-meter<br>RFT Runway friction tester<br>SFH Surface friction tester (high pressure tire)<br>SFL Surface friction tester (low pressure tire)<br>SKH Skiddometer (high pressure tire)<br>SKL Skiddometer (low pressure tire)<br>TAP Tapley meter<br>If other equipment used specify in plain language. |

| | | **Tagged Value Name** | **Value** |
|---|---|---|---|
| | | CLDMSemanticTrace | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@frictionDevice |

| | **Attribute Name** | **Type** | | **Notes** |
|---|---|---|---|---|
| | runwayDesignator | | | Item C according to ICAO Annex 15, |

| | | | | |
|---|---|---|---|---|
| | | | | Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Runway@designator | |
| | **Attribute Name** | **Type** | | **Notes** |
| | runwayLightsObscuredLeft | | | Item K according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@obscuredLightsSide | |
| | **Attribute Name** | **Type** | | **Notes** |
| | runwayLightsObscuredRight | | | Item K according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@obscuredLightsSide | |

| **Element Name** | | | **Author** | **Notes** |
|---|---|---|---|---|
| SNOWTAM | | | SVA003 ▮▮▮▮ | A special series NOTAM notifying the presence or removal of hazardous conditions due to snow, ice, slush or standing water associated with snow, slush and ice on the movement area, by means of a specific format. |
| | **Attribute Name** | **Type** | | **Notes** |
| | depositsOnApron | | | Item R according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType | |
| | **Attribute Name** | **Type** | | **Notes** |
| | locationIndicatorICAO | | | Item A according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:BaseInfrastructure:AerodromeInfrastructure:Aerodrome@locationIndicatorICAO | |
| | **Attribute Name** | **Type** | | **Notes** |
| | nextPlannedObservationTime | | | Item S according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:TemporalEnabledEntity | |
| | **Attribute Name** | **Type** | | **Notes** |
| | observationTime | | | Item B according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** | |

| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:TemporalEnabledEntity |
|---|---|---|---|
| | **Attribute Name** | **Type** | **Notes** |
| | remarks | | Item T according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:Abstract:LinguisticNote |

| **Element Name** | | **Author** | | **Notes** |
|---|---|---|---|---|
| SNOWTAMPublication | | SVA003 | ███████ | Publication message |
| **Element Name** | | **Author** | | **Notes** |
| SNOWTAMSubscription | | SVA003 | ███████ | Message for subscription |
| **Element Name** | | **Author** | | **Notes** |
| SNOWTAMUnsubscription | | SVA003 | ███████ | Message for unsubscription |
| **Element Name** | | **Author** | | **Notes** |
| Snowbank | | SVA003 | ███████ | Information about snowbanks beside a runway or taxiway. |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | snowBankHeigth | | Height of the snow bank in centimeters. Item J according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@depth |
| | **Attribute Name** | **Type** | **Notes** |
| | snowBankDistance | | Distance from the edge of runway in meters. Item J according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@distance |
| | **Attribute Name** | **Type** | **Notes** |
| | side | | Item J according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** |
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:Ridge@side |

| **Element Name** | | **Author** | | **Notes** |
|---|---|---|---|---|
| SubscriptionResponse | | SVA003 | ███████ | Reply to the subscription operation. |
| **Element Name** | | **Author** | | **Notes** |
| TaxiwayCondition | | SVA003 | ███████ | Information about conditions of taxiways. |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | depositsOnTaxiway | | Item N according to ICAO Annex 15, Appendix 2. |
| | **Tagged Value Name** | | **Value** |

| | | | |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | noTaxiwayAvailable | | Item N according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:RunwayContamination@isTaxiwayAvailable |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | depositType | CodeTypeOfDeposit | The type of contaminating substance on the movement area surface. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | CLDM_Out_of_scope |

| **Element Name** | | **Author** | **Notes** |
|---|---|---|---|
| Third | | SVA003 ███████ | Contains the SNOWTAM items for one third of a runway. |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | depositsOnRunway | | Item F according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeContaminationType |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | depthOfDeposit | | Item G according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@depth |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | estimatedSurfaceFriction | | Item H according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:Codelists:CodeFrictionEstimateType |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | measuredOrCalculatedSurfaceFriction | | Item H according to ICAO Annex 15, Appendix 2. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|
| | CLDMSemanticTrace | | urn:x-ses:sesarju:airm:v410:ConsolidatedLogicalDataModel:SubjectFields:AirTrafficOperations:AerodromeOperations:SurfaceContamination:SurfaceContamination@frictionCoefficient |

| | **Attribute Name** | **Type** | **Notes** |
|---|---|---|---|
| | depositsType | CodeTypeOfDeposit | The type of contaminating substance on the movement area surface. |

| | **Tagged Value Name** | | **Value** |
|---|---|---|---|

| CLDMSemanticTrace | | CLDM_Out_of_scope | |
|---|---|---|---|
| **Element Name** | **Author** | | **Notes** |
| UnsubscriptionResponse | SVA003 ███████ | | Reply to the unsubscrintion operation. |

**Table 5: Payload tracing to AIRM**

# 6 Service dynamic behaviour

The interface offers three operations, namely to subscribe/unsubscribe from the publication of the data, and to notify the consumer on the data being available. The service dynamic behaviour can be shown using the NSOV-5c Service-Event diagram created for the purpose. The following diagram shows that the interaction envisaged between provider and consumer is an asynchronous publish/subscribe "push" type MEP.
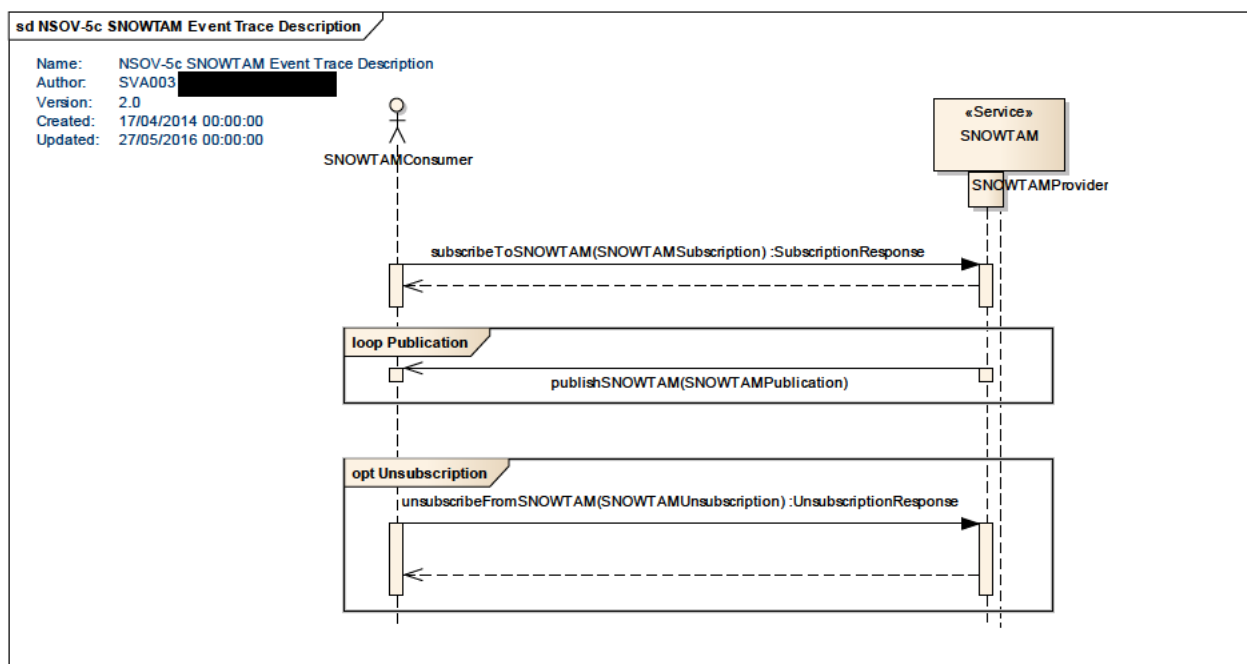
## 6.1 Service Interface SNOWTAMProvider

Figure 6: NSOV-5c SNOWTAM Service Event Trace Description

# 7 Service provisioning (optional)

Service prototyping has been performed in the context of MET-related validation exercise and EXE-06.03.01-VP-669 in SESAR. The technology so far identified for the technical interface is the OASIS standard Web Service Notification and belongs to the WP14 Yellow Profile. The detailed description of the technical service contract and service implementation for this exercise is part of technical deliverables by project 12.7.5.

# 8  Validation and Verification

## 8.1  Verification

Verification was performed according to the ISRM Rulebook [11] and the ISRM Verification Guidance [12].

### 8.1.1  Verification Results

Verification was performed via manual inspection and assisted by a script developed in 8.3.10. The verification outcome is completely free of errors.

Verification reports are in these files "Designed_Services_-_SNOWTAMService.xls" and "Designed_Services_-_SNOWTAMService_Common.xls" available in [15].

## 8.2  Validation

Validation for this service was performed as part of the SESAR validation exercise EXE-06.03.01-VP-669 in Q1 2016. The outcome is recorded in the Validation report VALR [16].

## 9  References

| Name | Version | Document ID / Location |
|------|---------|------------------------|
| [1] OFA 05.01.01 Consolidated OSED edition 3 document (Part1) | 03.00.00 | 06.05.04 D16 |
| [2] OFA 05.01.01 Consolidated OSED edition 3 document (Part2) | 03.00.00 | 06.05.04 D16 |
| [3] Service Identification Report - SVA003 | 00.01.00 | 08.03.06 |
| [4] B.4.3 Service Allocation - SVA003 | 00.00.03 | B.04.03 |
| [5] ISRM Service Portfolio | 00.08.01 | 08.03.10 D65 |
| [6] Project deliverables template | 03.00.00 | SJU templates & guidelines package, Project deliverables template |
| [7] SESAR Operational Service and Environment Definition | 03.00.00 | SJU templates & guidelines package, OSED template |
| [8] SESAR Safety and Performance Requirements | 03.00.00 | SJU templates & guidelines package, SPR template |
| [9] ISRM Tooling Guidelines | 00.07.00 | 08.03.10 D44 |
| [10] ISRM Modelling Guidelines | 00.07.00 | 08.03.10 D44 |
| [11] ISRM Foundation Rulebook | 00.07.00 | 08.03.10 D44 |
| [12] ISRM Verification Guidelines | 00.07.00 | 08.03.10 D44 |
| [13] European ATM Architecture (EATMA) Guidance Material v4 | 00.04.02 | B.04.01 D66 |
| [14] ICAO Annex 15, Aeronautical Information Services | 10th Edition, July 1997 | www.icao.int |
| [15] Verification reports for the service | N/A | 08.03.10 D65 Verification reports |
| [16] SESAR P06.03.01 Delivery of VALR EXE669 ENAV proposition | 00.01.00 | 06.03.01 D140 |

**-END OF DOCUMENT-**