



SCRAG/22 - REPORT

INTERNATIONAL CIVIL AVIATION ORGANIZATION

REPORT OF

**THE TWENTY-SECOND MEETING OF THE
SADIS COST RECOVERY ADMINISTRATIVE GROUP
(SCRAG/22)**

(Virtual, 8 December 2021)

THE DESIGNATIONS AND THE PRESENTATION OF MATERIAL IN THIS PUBLICATION DO NOT IMPLY THE EXPRESSION OF ANY OPINION WHATSOEVER ON THE PART OF ICAO CONCERNING THE LEGAL STATUS OF ANY COUNTRY, TERRITORY, CITY OR AREA OF ITS AUTHORITIES, OR CONCERNING THE DELIMITATION OF ITS FRONTIERS OR BOUNDARIES.

TABLE OF CONTENTS

	<i>Page</i>
INTRODUCTION	
Place and Duration	1
Attendance	1
Officers and Secretariat	1
Agenda	1
Agenda Item 1: Review of SCRAG's Terms of Reference, Composition and Working Arrangements	2
Agenda Item 2: Consideration of issues relevant to the SCRAG's work addressed by the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG)	2
Agenda Item 3: Review of actual SADIS costs and cost shares for the period 1 January to 31 December 2020	5
Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2022 and estimated costs for the next two to five years	7
Agenda Item 5: Review of the status of SADIS payments for the current year (2021) invoices	10
Agenda Item 6: Amendments to Annexes of the SADIS Agreement	10
Agenda Item 7: Future work and arrangements for the SCRAG/23 Meeting	11
Agenda Item 8: Other business	11
APPENDICES	
Appendix A: List of participants	A-1
Appendix B: List of SCRAG/22 working papers	B-1
Appendix C: Status of accession to the SADIS Agreement	C-1
Appendix D: Actual cost shares for the period 1 January to 31 December 2020 and adjustment for 2020	D-1
Appendix E: SADIS cost estimates for 2022 to 2025 for SADIS services provided by the United Kingdom Meteorological Office	E-1
Appendix F: Status of payment of the assessment for 2020 and of balances for years prior to 2020 as at 2 November 2021	F-1
Appendix G: Estimated cost shares and assessments for the period 1 January to 31 December 2022	G-1
Appendix H : Amounts to be billed for the period 1 January to 31 December 2022	H-1
Appendix I: Amendment to Annex I, SADIS Services, to the SADIS Agreement	I-1
Appendix J: Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	J-1

INTRODUCTION

Place and Duration

1. The Twenty-Second Meeting of the SADIS Cost Recovery Administrative Group (SCRAG) was conducted virtually on Wednesday, 8 December 2021.

Attendance

2. The meeting was attended by the following Members and representatives from the Regions: Ms. Zou Juan from the Asia and Pacific Region, Mr. Mohamed Al Abri from the Middle East Region and Mr. Matthias Garke from the European Region. Also in attendance were the Provider State participants and ICAO representatives. The list of attendees is shown in Appendix A and the working papers issued for the meeting are listed in Appendix B.

Officers and Secretariat

3. Ms. Zou Juan from the Asia and Pacific Region was Chairperson of the meeting. Ms. Joanna Zorbas, Joint Financing Officer, ICAO Headquarters in Montréal, served as Secretary.

Agenda

4. The following agenda was adopted:

Agenda Item 1: Review of SCRAG's Terms of Reference, Composition and Working Arrangements

Agenda Item 2: Consideration of issues relevant to the SCRAG's work addressed by the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG)

Agenda Item 3: Review of actual SADIS costs and cost shares for the period 1 January to 31 December 2020

Agenda Item 4: Review of estimated SADIS costs and cost shares for the period 1 January to 31 December 2022 and estimated costs for the next two to five years

Agenda Item 5: Review of the status of SADIS payments for the current year (2021) invoices

Agenda Item 6: Amendments to Annexes of the SADIS Agreement

Agenda Item 7: Future work and arrangements for the SCRAG/23 Meeting

Agenda Item 8: Other business

AGENDA ITEM 1: REVIEW OF SCRAG'S TERMS OF REFERENCE, COMPOSITION AND WORKING ARRANGEMENTS

1.1 Ms. Zou Juan from the Asia and Pacific Region participated in the capacity of Chairperson for the SCRAG/22 meeting.

1.2 Article VII, paragraph II of the SADIS Agreement states that the SCRAG shall be composed of one Party from each region and that regions, which in the aggregate, are responsible for more than 50 per cent of the total current assessments, shall nominate an additional Party. Only one Party from each region was required for the SCRAG/22 meeting since all the regions have a percentage of total assessments below the 50 per cent level. A second member has been nominated from the European region by the European Air Navigation Planning Group (EANPG) as the percentage of total assessments for the region approximates and sometimes surpasses the 50 per cent level.

1.3 The Group noted its Terms of Reference assigned by Article VII of the SADIS Agreement, which reads:

“The SADIS Cost Allocation and Recovery (SCAR) arrangement shall be administered by a group, the *SADIS Cost Recovery Administrative Group* (SCRAG) which shall:

- a) assess the annual cost share attributable to each Party, including reassessments arising from new Parties adhering to this Agreement; and
- b) audit the costs of the SADIS provision and any related financial activities, incurred by the Provider State and subject to cost sharing.”

1.4 The Group was informed that ICAO had received a formal notification of accession to the SADIS Agreement from 73 States. Three of these States are not presently receiving the service and 12 of these States are Least Developed Countries (LDCs), which are exempted from payment of SADIS cost share. The Group was also informed that 51 other States receiving the SADIS service had not yet acceded to the SADIS Agreement. Of these States, 23 are LDCs, which are exempted from payment of SADIS cost share. States that have formally acceded to the SADIS Agreement and States that have not are listed in Appendix C.

1.5 The Group discussed encouraging the Accession of States to the SADIS Agreement. In this regard, the following conclusion was formulated:

SCRAG Conclusion 22/1

The SADIS Manager will liaise with the Met Officers in the ICAO Regional Offices and present information to the relevant PIRG meetings to encourage States who have not yet acceded to the SADIS agreement to do so.

AGENDA ITEM 2: CONSIDERATION OF ISSUES RELEVANT TO THE SCRAG'S WORK ADDRESSED BY THE METEOROLOGY PANEL (METP) WORKING GROUP ON METEOROLOGICAL OPERATIONS GROUP (WG-MOG)

2.1 The Group was informed of the main conclusions of the Fifteenth Meeting of the Meteorology Panel (METP) Working Group on Meteorological Operations Group (WG-MOG) (METP WG-MOG/15, conducted virtually on 15 April 2021) provided by the Rapporteur of the METP WG-MOG.

2.2 In accordance with Action 15/02 of METP WG-MOG/13, the Group noted the Statement of SADIS operational efficacy received from the Rapporteur of the METP WG-MOG, relaying the information from the Group at its Fifteenth Meeting to the SCRAG that the operational efficacy of the SADIS had continued to be satisfactory, meeting all operational requirements since the METP WG-MOG/13 Meeting (Virtual, 25 April 2020).

2.3 The following Actions/Decisions relating to the SADIS Service were documented in the report of the METP WG-MOG/15:

MOG Action agreed 15/01 — Terms of Reference

That;

- a) the METP-WG/MOG meeting accepts the proposed updates to the Terms of Reference as shown in Appendix B;
- b) the ICAO Secretariat make available the updated Terms of Reference document onto the ICAO public website (<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>), replacing the previous copy; and
- c) the finalised Terms of Reference are presented as an information paper at METP/5.

Status: Complete

MOG Action agreed 15/02: Annual statement of operational efficacy of SADIS 2020/2021

That the Rapporteur of the METP-WG/MOG be invited to inform the Secretary of the SCRAG (who will pass this on to the Chair of the SCRAG) that the SADIS continued to meet the operational requirements during the period 2020/2021.

Status: Complete.

MOG Action agreed 15/03: 2021 SADIS Efficacy Survey

That the web hosted SADIS Efficacy questionnaire, using the questions shown in Appendix D to this [the METP-WG/MOG15] report, be used for the 2021 survey which will commence on 1 July 2021 and end on 31 December 2021.

Status: Survey is in progress.

MOG Action agreed 15/04: Status of Implementation of SADIS

That the ICAO Secretariat be invited to publish the updated Status of Implementation of SADIS document, as shown in Appendix E to this [the METP-WG/MOG15] report, on the ICAO website (<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>), replacing the previous copy.

Status: Complete.

MOG Action agreed 15/05: SADIS OPMET Catalogue

That;

- a) the April 2021 update to the SADIS OPMET catalogue, once finalised is published on SADIS and <https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx> (replacing the previous version); and
- b) the catalogue is updated at least annually.

Status: Complete.

MOG Action Agreed 15/06 — SADIS User Guide

That;

- a) the proposed updates to the SADIS User Guide Part 1 and Part 2, as contained in SN07 Attachment 1 and 2, are accepted;
- b) the two redundant appendices (SUG Annex 2 and SUG Annex 3) that are published as separate documents are removed from the ICAO website (<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>); and,
- c) once finalised, the new copy of the SADIS User Guide parts 1 and 2 is published on the ICAO website by the ICAO Secretariat.

Status: Complete

MOG Action agreed 15/07: SADIS Software Evaluation Criteria and Workstation User Evaluation Guide

That;

- a) the “Software Evaluation Criteria”, as contained in SN/08 Attachment A, and the “SADIS Workstation User Evaluation Guide”, as contained in SN/08 Attachment B is approved by the group;
- b) once finalised, both documents will be passed to the Secretary for publication on the ICAO website (<https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>); and
- c) the SADIS manager will arrange for them to be published on the Met Office Website and in the “documentation” section on SADIS.

Status: Complete.

MOG Action agreed 15/08: SADIS Agreement Annex I and II 2021-2022

That, the Rapporteur of the METP-WG/MOG be invited to forward the updated SADIS Agreement Annex I and II inventory given in appendix F to the Secretary of SCRAG.

Status: Complete. This is provided in WP11 and WP3 at SCRAG22.

MOG Action Agreed 15/09: WAFS GRIB2 Specification

That the ICAO Secretariat be invited to publish the GRIB documents once finalised (as contained in SN11 Attachment 1 and 2), on <https://www.icao.int/airnavigation/METP/Pages/Public-Documents.aspx>, replacing the previous versions.

Status: Complete

MOG Action agreed 15/10 — Update of Job Card 008.03

- a) That the METP-WG/MOG meeting accepts the proposed updates to Job Card 8 as shown in Appendix G to this report; and
- b) That the METP-WG/MOG recommend these changes to METP/5.

Status: Complete

MOG Action 6/1 - Alignment of OPMET content from SADIS and WIFS

That, in coordination with the European OPMET Data Management Group, the SADIS and the WIFS provider states be invited to:

- a) continue efforts to align of the OPMET content of SADIS and WIFS for scheduled OPMET information (METAR and TAF) and non-scheduled OPMET information (such as AIRMET and Special AIREP); and
- b) report on progress in respect of a) above to the next WG-MOG Meeting.

Status: ongoing

SCRAG Conclusion 22/2 —

The Group recommended that the Chair of the METP-WG/MOG forward the Annual Statement of Operational Efficacy to the Secretary of the SCRAG, who in turn will send the report to the Chairperson of the SCRAG subsequent to their nomination at the start of the annual SCRAG meeting.

AGENDA ITEM 3: REVIEW OF ACTUAL SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2020

Review of the 2020 Actual SADIS Costs

3.1 The Group reviewed the actual costs of £ 510 220 for providing the SADIS services in the year 2020. These actual costs are detailed in Appendix E, Column “Actual 2020” and the cost share per State is presented in Column 4 of Appendix D. A summary of these costs is presented in Table 1 (A).

TABLE 1 (A)
SUMMARY OF ACTUAL SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2020

Cost Item	Actual Costs (UK £)
UK Met Office	206 226
UK NATS SADIS Gateway	269 500
UK CAA administrative costs	980
Sub-total UK	476 706
ICAO support service costs	33 514
TOTAL	510 220

Review of the 2020 Actual SADIS Cost Shares

3.2 The Group noted that five States did not receive the service throughout the full 2020 year. Belarus was assessed for six full months of service since they only started receiving the service in June 2020. Two States, Kyrgyzstan and Tajikistan start date of service receipt was in November 2020 and as a result both States were assessed for one full month of service during 2020. Another State, Luxembourg was assessed for two full months of service during 2020 as their state date for receipt of service was October 2020. Kuwait was disconnected from SADIS services during the first two months of the year, as a result, their share of the actual costs for 2020 was calculated based on ten full months of service in 2020.

3.3 The Group determined that the actual cost shares for the period 1 January to 31 December 2020 be borne by the States' party to the SADIS Agreement which are not exempted because they are on the list of the Least Developed Countries (LDCs). On the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2020, in accordance with Article XI, paragraph 3, of the SADIS Agreement, the cost share in percentage terms and the share in £ sterling to be borne by each State participating in the SADIS Cost Allocation and Recovery (SCAR) Arrangement are shown in Appendix D.

3.4 The Group noted that in determining State assessments, ATKs decreased by 50.61 per cent in 2020 compared to 2019 ATKs. The decrease related to each individual State however varied. In accordance with Article XI, paragraph 1 of the SADIS Agreement, the apportionment of costs between States is based on the total number of ATKs in scheduled international and domestic services. As a result, States that maintained a higher level of domestic services throughout 2020, or experienced a less significant decrease in international service than other States, may have a higher apportionment of the total cost of the SADIS services for the year in comparison to their proportion of 2019 ATKs.

3.5 The Group noted the adjustment for 2020; an under-recovery of £3 665, is the difference between the 2020 actual costs and the 2020 estimated costs approved by the SCRAG/20 meeting, as indicated in Table 1 (B).

TABLE 1 (B)

**ADJUSTMENT OF ACTUAL SADIS COSTS TO ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2020**

	Cost Item	Actual Costs (UK £)	Reference
(1)	2020 Actual Cost	510 220	Table 1 (A)
(2)	2020 Estimated Cost	506 555	SCRAG/20 Report, Table 3
(3)	Under-recovery for 2020 (to be added to the amount billed in 2022)	3 665	(1) - (2) <i>(see Appendix D, column 6 and Appendix H, column 2)</i>

The Group formulated the following Conclusion:

SCRAG Conclusion 22/3 —

The actual cost shares for 2020, as shown in Appendix D to the SCRAG/22 Report for the States participating in the SCAR Arrangement are approved by the SCRAG/22 meeting, with consequential adjustments to be made by the United Kingdom in its billing of these States for 2022, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

3.6 The Group received information from the Observer from the United Kingdom on the status of payment of the cost shares of 2020 as at 2 November 2021. It was noted that a total amount of £ 432 480.59 was collected for 2020 (see Appendix F, page F-2). A balance of £ 279.47, which represents the sum of two States with balances owed, remains outstanding. Outstanding 2020 credits total £ 1 140.59, resulting in a net balance of £ -861.12, as indicated in the final column of Appendix F, page F-2.

3.7 The Group noted that, consistent with Conclusion 14/7, which was reached during the SCRAG/14 meeting, the small additional costs incurred in the process of obtaining payment of SADIS invoices (these include bank charges and courier costs), have been added to the administrative costs for the SADIS Provider State.

3.8 Having noted the information in Table 1 (A) and paragraphs 3.4 to 3.6 above, the Group agreed that the under-recovery of SADIS cost shares for the year 2020 amounts to £ 42 492, as shown in Table 2 below. The under-recovery of 2020 is the amount subject to collection for 2020 (£ 474 973), less the amounts collected for 2020 and prior years (£ 432 481).

TABLE 2
OVER-RECOVERY FOR 2020

		UK £	References
(1)	Actual costs for 2020	510 220	Table 1 (A)
(2)	Over-recovery for 2018	35 247	SCRAG/20 Report, Table 2
(3)	Subject to collection for 2020	474 973	(1) + (2)
(4)	Collected from States for 2020 (as at 2 November 2021)	-432 481	Appendix F – page F-2 (column 3 minus column 5)
(5)	Collected from States for years prior to 2020 (as at 2 November 2021)	0	Appendix F – page F-3 (column 3)
(6)	Under-recovery for 2020 (to be added to the assessments for 2022)	42 492	(3) + (4) + (5) (see Appendix G, column 5)

The Group formulated the following Conclusion:

SCRAG Conclusion 22/4 —

An under-recovery, amounting to £42 492 of the SADIS cost shares for the year 2020, will be taken into account in the calculation of the SADIS cost shares for the year 2022, in accordance with Article XI, paragraph 4, of the SADIS Agreement.

AGENDA ITEM 4: REVIEW OF ESTIMATED SADIS COSTS AND COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022 AND ESTIMATED COSTS FOR THE NEXT TWO TO FIVE YEARS

Review of the 2022 Estimated SADIS Costs

4.1 The cost estimates for 2022 are detailed in the column “Est 2022”, in Appendix E, and total £ 520 750. A summary of these costs are presented in Table 3.

TABLE 3
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022

Cost Item	Estimated Costs (UK £)
UK Met Office	200 600
UK NATS SADIS Gateway	282 900
UK CAA administrative costs	1 000
Sub-total UK	484 500
ICAO support services costs	36 250
TOTAL	520 750

4.2 The Group considered the under-recovery in Table 2 in the calculation of the amount to be assessed under the SADIS Agreement for 2022. The calculation of the amount to be assessed is presented in Table 4.

TABLE 4
AMOUNT TO BE ASSESSED UNDER THE SADIS AGREEMENT FOR 2022

		UK £	References
(1)	Under-recovery for 2020	42 492	Table 2
(2)	Estimated costs for 2022	520 750	Table 3
(3)	Amount to be assessed for 2022	563 242	(1) + (2) <i>(see Appendix G, column 6)</i>

4.3 The Group determined that the cost shares for the period 1 January to 31 December 2022, be borne by the States' party to the SADIS Agreement which are not exempted because they are on the list of the Least Developed Countries, on the basis of the number of available tonne-kilometres (ATKs) in scheduled services for 2020, in accordance with Article XI, paragraph 3, of the SADIS Agreement.

4.4 The cost share in percentage terms and the share in £ sterling, plus the share of under-recovery for 2020, attributable to each State, are shown in Appendix G. Appendix H shows the amounts to be billed to each State in 2022, corresponding to the adjustment for 2020 (Appendix D), plus the assessment for 2022 (Appendix G), less any deduction of unused credit balances or other adjustments from previous years.

TABLE 5
AMOUNT TO BE BILLED UNDER THE SADIS AGREEMENT FOR 2022

		UK £	References
(1)	Amount to be Assessed for 2022	563 242.00	Table 4
(2)	Adjustment of Actual SADIS Costs to Estimated Costs for 2020	3 665.00	Table 1 (B)
(3)	Deduction of Unused Credit Balances from Previous Year or Other Adjustments	-1 417.59	Appendix H <i>(column 4)</i>
(4)	Amount to be Billed for 2022	565 489.41	(1)+(2)+(3) <i>(see Appendix H, column 5)</i>

The Group formulated the following Conclusion:

SCRAG Conclusion 22/5 —

The estimated cost shares for 2022 as shown in Appendix G to the SCRAG/22 Report for each State participating in the SCAR Arrangement are approved by the SCRAG/22 meeting for collection by the United Kingdom.

Cost Estimates for the Years 2023 to 2025

4.5 The Group considered the estimates provided by the United Kingdom (Appendix E) and summarized in Table 6 of providing the SADIS services for the years 2023 to 2025, as well as the estimates for the United Kingdom administrative costs and the costs of ICAO support services.

TABLE 6
SUMMARY OF ESTIMATED SADIS COSTS
FOR THE YEARS 2023, 2024 AND 2025

Cost Item	Estimated Costs 2023 (UK £)	Estimated Costs 2024 (UK £)	Estimated Costs 2025 (UK £)
UK Met Office	201 400	289 400	320 000
UK NATS SADIS Gateway	289 800	294 900	300 200
UK CAA administrative costs	1 000	1 000	1 000
Sub-total UK	492 200	585 300	621 200
ICAO support services costs	37 000	38 000	39 000
TOTAL	529 200	623 300	660 200

4.6 Members noted and discussed the expected increase in SADIS operating costs attributable to the UK Met Office in 2024 and 2025. This is due to the introduction of much higher resolution WAFS data (which cannot be published via the SADIS FTP) and the requirements set out in the ICAO Global Air Navigation Plan for meteorological data to be provided via SWIM compliant systems (which the SADIS FTP does not currently meet). These changes have been documented and accepted by the MET Panel MOG Working group, and the METP/5 Meeting (7-16 June 2021). The SADIS manager will make the MOG members aware of the expected operating costs at the next MOG-SADIS meeting in April 2022.

4.7 The Group noted that an additional working paper or presentation will be presented next year to outline options that could be considered as a basis for assessing States for SADIS services in the future.

AGENDA ITEM 5: REVIEW OF THE STATUS OF SADIS PAYMENTS FOR THE CURRENT YEAR (2021) INVOICES

5.1 The Group reviewed WP/12 on the status of payment for the current (2021) year, presented by the United Kingdom.

5.2 The Group formulated the following Conclusion:

SCRAG Conclusion 22/6 —

With the assistance of ICAO Regional Met Officers, the SADIS Provider will continue to make all efforts to contact and remind the States of their outstanding payments. The Group agreed that the SADIS Provider State be invited to withdraw access to the secure SADIS FTP for those States who, as at 1200 UTC on 19 January 2022, have cumulative outstanding payments over GBP 100 due for any invoice dated 2021 or earlier.

AGENDA ITEM 6: AMENDMENTS TO ANNEXES OF THE SADIS AGREEMENT

6.1 The Group reviewed the amendments to Annex I, SADIS Services, to the SADIS Agreement as proposed by the METP WG-MOG and agreed upon by the United Kingdom as the SADIS Provider State. These amendments were necessary to ensure that services would continue to meet the approved operational requirements. The additions and deletions to the existing text of Annex I appear in outline and strikeout formats in Appendix I.

6.2 As a result of its review, the Group adopted the following Conclusion:

SCRAG Conclusion 22/7 —

With the consent of the United Kingdom as the SADIS Provider State, in accordance with Article XVII, paragraph 5, of the SADIS Agreement, Annex I, SADIS Services, of the SADIS Agreement is amended as indicated in Appendix I to the SCRAG/22 Report.

6.3 The Group reviewed the amendments to Annex II, SADIS Inventory, to the SADIS Agreement as proposed by the METP WG-MOG and agreed upon by the United Kingdom as the SADIS Provider State. These amendments were necessary to ensure that the inventory would continue to meet the approved operational requirements. The additions and deletions to the existing text of Annex II appear in outline and strikeout formats in Appendix J.

6.4 As a result of its review, the Group adopted the following Conclusion:

SCRAG Conclusion 22/8 —

With the consent of the United Kingdom as the SADIS Provider State, in accordance with Article XVII, paragraph 5, of the SADIS Agreement, Annex II, SADIS Inventory, of the SADIS Agreement is amended as indicated in Appendix J to the SCRAG/22 Report.

AGENDA ITEM 7: FUTURE WORK AND ARRANGEMENTS FOR THE SCRAG/23 MEETING

7.1 The Group determined the provisional location and date for the Twenty-third SCRAG meeting to be 30 November 2022 in the UK, and it was noted that if an in person meeting is held it will also be hosted virtually to enable remote attendance.

AGENDA ITEM 8: OTHER BUSINESS

8.1 The Group expressed its appreciation for the assistance provided by the UK Met Office in conducting the virtual meeting.

APPENDIX A

LIST OF PARTICIPANTS

Members

Ms. Zou Juan (Chairperson)

Meteorology Division
Air Traffic Management Bureau
Civil Aviation Administration of China
No. 12, East Sanhuan Road Middle, Chaoyang District
Beijing 100022, China
Tel.: + 8610 87786826
E-mail: zoujuan@atmb.net.cn

Mr. Mohamed Al Ebri

Aviation Meteorology
National Center of Meteorology & Seismology
Ministry of Presidential Affairs
P.O.Box: 966655 Abu Dhabi
United Arab Emirates
Tel : +9712 2227300
Email: malabri@ncms.ae

Representing Members:

Mr. Matthias Garke

Deutscher Wetterdienst
Frankfurter Str. 135
63067 Offenbach
Germany
Tel.: 069/8062-4348
E-mail: Matthias.Garke@dwd.de

United Kingdom as SADIS Provider

Ms. Karen Shorey

International Aviation and SADIS Manager
Met Office
Fitzroy Road, Exeter
EX1 3PB
United Kingdom
Tel.: +44 330 135 1370
E-mail: karen.shorey@metoffice.gov.uk and SADISmanager@metoffice.gov.uk

Mr. Stephen Manktelow
Policy Specialist MET
CAA Aviation House
Beehive Ringroad,
Crawley
West Sussex RH6 0YR
United Kingdom
Tel.: +44 (0)7342033762
E-mail: stephen.manktelow@caa.co.uk

Mr. Matt Wagner
SADIS Gateway Manager
NATS
Sopwith Way
Swanwick
SO31 7AY
United Kingdom
Tel.: 01489 88715
E-mail: Matt.WAGNER@nats.co.uk

International Civil Aviation Organization (ICAO)

Ms. Joanna Zorbas
Secretary, SCRAG
Joint Financing Officer
Joint Financing Section
Air Transport Bureau
999 Robert Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7
Tel.: +1 514 954-8219, ext. 8375
E-mail: jzorbas@icao.int

Mr. Jun Ryuzaki
Technical Officer, Meteorology
Airport Operations and Infrastructure
Air Navigation Bureau
999 Robert Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7
Tel.: +1 514 954-6322, ext. 6322
E-mail: jryuzaki@icao.int

Mr. Goama Ilboudo
Regional Officer
Western and Central African Office, Dakar (WACAF)
Leopold Sedar Senghor International Airport
Po Box: 38050 Dakar, Sénégal
Tel: +221 33 8692424
E-mail : Gilboudo@icao.int

APPENDIX B

LIST OF SCRAG/22 WORKING PAPERS

Working Paper No.	Agenda Item	Subject	Presented by
1	1 to 9	Provisional agenda	Secretariat
2	1, 3 & 4	Status of accession to the SADIS Agreement	Secretariat
3	2, 4 & 6	Reports on Conclusions of the METP WG-MOG/15 meeting	United Kingdom
4	3	2020 ICAO actual SADIS administrative costs	Secretariat
5	3	2020 actual SADIS costs	United Kingdom
6	3	Status of payments for the year 2020	United Kingdom
7	3	Summary of actual costs and cost shares for the year 2020	Secretariat
8	4	2022 ICAO estimated SADIS administrative costs	Secretariat
9	4	Estimated SADIS costs: two to five years	United Kingdom
10	4	Summary of estimated costs and assessments for the year 2022	Secretariat
11	6	Amendment to Annex II, SADIS Inventory, to the SADIS Agreement	Secretariat
12	5	Status of payments for the current (2021) year	United Kingdom
13	6	Amendments to Annex I of the SADIS Agreement	United Kingdom
14	5	Credit balances	Secretariat

APPENDIX C

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

STATES	LDC's Exempted
Albania	
Armenia	
Australia	
Austria	
Bahrain	
Bangladesh	X
Belarus	
Belgium	
Botswana	
Cameroon	
China	
Congo	
Côte d'Ivoire	
Croatia	
Cyprus	
Czechia	
Democratic People's Republic of Korea *	
Democratic Republic of the Congo	X
Denmark	
Egypt	
Estonia	
Finland	
France	
Gabon	
Gambia	X
Georgia	
Germany	
Greece	
Hungary	
Israel	
Italy	
Jordan	
Kazakhstan	
Kuwait	
Kyrgyzstan	
Lao People's Democratic Republic	X
Latvia	
Lesotho	X
Lithuania	
Madagascar	X
Malta	
Mauritius	
Mongolia *	
Morocco	
Netherlands	
Norway	
Oman	
Pakistan	
Poland	
Portugal	
Republic of Moldova	
Romania	
Russian Federation	
Senegal	X
Slovakia	
Slovenia	

* Although they formally acceded to the SADIS Agreement, these States do not presently receive the service.

STATES WHICH FORMALLY ACCEDED TO THE SADIS AGREEMENT

Spain	
Sweden	
Switzerland	
Tajikistan	
Thailand	
Togo	X
Tunisia	
Turkmenistan *	
Uganda	X
Ukraine	
United Arab Emirates	
United Kingdom	
United Republic of Tanzania	X
Uzbekistan	
Viet Nam	
Yemen	X
Zambia	X

* Although they formally acceded to the SADIS Agreement, these States do not presently receive the service.

STATES WHICH HAVE NOT YET ACCEDED TO THE SADIS AGREEMENT

STATES	LDC's Exempted
Algeria	
Angola	X
Azerbaijan	
Benin	X
Bosnia and Herzegovina	
Bulgaria	
Burkina Faso	X
Burundi	X
Cabo Verde	
Cambodia	X
Central African Republic	X
Chad	X
Comoros	X
Djibouti	X
Equatorial Guinea	
Eswatini	
Ethiopia	X
Ghana	
Guinea	X
Guinea-Bissau	X
Iceland	
India	
Indonesia	
Iraq	
Ireland	
Kenya	
Liberia	X
Libya	
Luxembourg	
Malawi	X
Maldives	
Mali	X
Mauritania	X
Montenegro	
Mozambique	X
Namibia	
Niger	X
Nigeria	
North Macedonia	
Qatar	
Rwanda	X
Sao Tome and Principe	X
Saudi Arabia	
Serbia	
Seychelles	
Somalia	X
South Africa	
South Sudan	X
Sudan	X
Turkey	
Zimbabwe	

APPENDIX D

ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2020* AND ADJUSTMENT FOR 2020

STATES	2020 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2020 Actual Costs (£ Sterling)	Share of 2020 Estimated Costs (SCRAG/20) (£ Sterling)	Adjustment for 2020 (£ Sterling)
Albania	13 678	0.003%	15.94	15.51	0.43
Algeria	236 193	0.054%	275.24	613.59	- 338.35
Armenia	10 155	0.002%	11.83	7.94	3.89
Australia	8 369 914	1.912%	9 753.63	15 129.35	- 5 375.72
Austria	2 453 546	0.560%	2 859.17	2 154.63	704.54
Azerbaijan	3 501 381	0.800%	4 080.23	427.63	3 652.60
Bahrain	1 048 164	0.239%	1 221.45	1 914.73	- 693.28
Belarus (note 2)	121 836	0.028%	141.98	0.00	141.98
Belgium	3 079 140	0.703%	3 588.18	3 380.51	207.67
Bosnia and Herzegovina	824	0.000%	0.96	0.32	0.64
Botswana (note 7)	0	0.000%	0.00	10.20	- 10.20
Bulgaria	89 029	0.020%	103.75	129.34	- 25.59
Cabo Verde	113 572	0.026%	132.35	75.09	57.26
Cameroon	2 266	0.001%	2.64	27.16	- 24.52
China: - Beijing	113 998 396	26.037%	132 844.66	99 378.04	33 466.62
- Hong Kong	14 981 398	3.422%	17 458.13	22 409.15	- 4 951.02
- Macao	203 912	0.047%	237.62	459.74	- 222.12
Congo	17 699	0.004%	20.63	45.14	- 24.51
Côte d'Ivoire	142 515	0.033%	166.08	88.05	78.03
Croatia	88 293	0.020%	102.89	131.95	- 29.06
Cyprus	32 220	0.007%	37.55	41.32	- 3.77
Czechia	288 198	0.066%	335.84	705.88	- 370.04
Denmark	1 032 342	0.236%	1 203.01	1 305.02	- 102.01
Egypt	2 553 854	0.583%	2 976.06	3 030.38	- 54.32
Equatorial Guinea	19 325	0.004%	22.52	28.33	- 5.81
Estonia (note 7)	0	0.000%	0.00	1.12	- 1.12
Eswatini	976	0.000%	1.14	1.46	- 0.32
Finland	2 437 613	0.557%	2 840.60	3 763.43	- 922.83
France	15 915 046	3.635%	18 546.13	20 749.75	- 2 203.62
Gabon (note 1)	1 528	0.000%	1.78	1.70	0.08
Georgia	34 454	0.008%	40.15	122.05	- 81.90
Germany	16 410 239	3.748%	19 123.19	25 489.91	- 6 366.72
Ghana	19 292	0.004%	22.48	14.77	7.71
Greece	726 974	0.166%	847.16	976.57	- 129.41
Hungary	3 434 980	0.785%	4 002.85	3 026.84	976.01
Iceland	627 904	0.143%	731.71	2 214.06	- 1 482.35
India	13 134 260	3.000%	15 305.62	18 679.63	- 3 374.01
Indonesia	7 607 851	1.738%	8 865.58	11 389.47	- 2 523.89
Iraq	181 974	0.042%	212.06	179.83	32.23
Ireland	8 786 699	2.007%	10 239.32	14 183.99	- 3 944.67
Israel	2 247 046	0.513%	2 618.53	2 689.48	- 70.95
Italy	3 334 114	0.761%	3 885.31	4 394.12	- 508.81
Jordan	503 462	0.115%	586.69	1 038.10	- 451.41
Kazakhstan	1 056 120	0.241%	1 230.72	1 297.71	- 66.99
Kenya	1 328 843	0.304%	1 548.53	1 223.12	325.41
Kuwait (note 6)	505 830	0.116%	589.45	2 112.61	- 1 523.16
Kyrgystan (note 3)	4 540	0.001%	5.29	0.00	5.29
Latvia	348 212	0.080%	405.78	423.89	- 18.11
Libya	151 969	0.035%	177.09	168.47	8.62
Lithuania	14 539	0.003%	16.94	0.39	16.55

**ACTUAL COST SHARES FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2020*
AND ADJUSTMENT FOR 2020**

STATES	2020 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2020 Actual Costs (£ Sterling)	Share of 2020 Estimated Costs (SCRAG/20) (£ Sterling)	Adjustment for 2020 (£ Sterling)
Luxembourg (note 4)	1 793 316	0.410%	2 089.79	0.00	2 089.79
Maldives	103 768	0.024%	120.92	72.64	48.28
Malta	162 945	0.037%	189.88	290.61	- 100.73
Mauritius	339 428	0.078%	395.54	850.49	- 454.95
Montenegro (note 7)	0	0.000%	0.00	40.29	- 40.29
Morocco	1 310 771	0.299%	1 527.47	2 454.64	- 927.17
Namibia	17 816	0.004%	20.76	196.37	- 175.61
Netherlands	15 412 062	3.520%	17 959.99	14 151.73	3 808.26
Nigeria	398 249	0.091%	464.09	370.52	93.57
North Macedonia (note 1)	24 030	0.005%	28.00	29.58	- 1.58
Norway	1 801 123	0.411%	2 098.89	4 191.27	- 2 092.38
Oman	964 159	0.220%	1 123.55	2 324.33	- 1 200.78
Pakistan	1 595 431	0.364%	1 859.19	1 846.59	12.60
Poland	1 183 020	0.270%	1 378.60	1 752.14	- 373.54
Portugal	2 718 297	0.621%	3 167.69	3 942.84	- 775.15
Qatar	35 866 107	8.192%	41 795.51	27 948.96	13 846.55
Republic of Moldova	70 893	0.016%	82.61	160.59	- 77.98
Romania	344 557	0.079%	401.52	527.98	- 126.46
Russian Federation	25 803 791	5.893%	30 069.69	23 797.64	6 272.05
Saudi Arabia	8 632 868	1.972%	10 060.06	8 444.59	1 615.47
Senegal	67 705	0.015%	78.90	1.40	77.50
Serbia	229 033	0.052%	266.90	264.81	2.09
Seychelles	32 222	0.007%	37.55	79.49	- 41.94
Slovakia	297	0.000%	0.35	0.00	0.35
Slovenia	8 394	0.002%	9.78	96.87	- 87.09
South Africa	1 673 455	0.382%	1 950.11	3 660.71	- 1 710.60
Spain	6 656 733	1.520%	7 757.23	10 957.50	- 3 200.27
Sweden	714 663	0.163%	832.81	1 317.18	- 484.37
Switzerland	4 743 361	1.083%	5 527.54	6 873.48	- 1 345.94
Tajikistan (note 5)	11 456	0.003%	13.35	0.00	13.35
Thailand	6 527 000	1.491%	7 606.05	13 335.69	- 5 729.64
Tunisia	348 269	0.080%	405.84	557.41	- 151.57
Turkey	22 156 092	5.060%	25 818.95	21 240.41	4 578.54
Ukraine	508 781	0.116%	592.89	1 395.74	- 802.85
United Arab Emirates	39 494 773	9.020%	46 024.05	48 872.10	- 2 848.05
United Kingdom	19 747 342	4.510%	23 011.98	33 230.49	- 10 218.51
Viet Nam	5 113 136	1.168%	5 958.44	5 608.09	350.35
Zimbabwe	48 992	0.011%	57.09	18.36	38.73
TOTAL	437 836 650	100.000%	510 220.00	506 555.00	3 665.00

* Least Developed Countries are exempted.

Note 1: 2020 ATKs were not received for Gabon and North Macedonia.

The number of ATKs shown is the latest available adjusted based on the annual growth rate of ATKs for the specific Region.

Note 2: In accordance with the months for which services were received, Belarus's share of actual 2020 costs was calculated based on 6 full months of service.

Note 3: In accordance with the months for which services were received, Kyrgyzstan's share of actual 2020 costs was calculated based on 1 full month of service.

Note 4: In accordance with the months for which services were received, Luxembourg's share of actual 2020 costs was calculated based on 2 full months of service.

Note 5: In accordance with the months for which services were received, Tajikistan's share of actual 2020 costs was calculated based on 1 full months of service.

Note 6: In accordance with the months for which services were received, Kuwait's share of actual 2020 costs was calculated based on 10 full months of service.

Note 7: Three States, Botswana, Estonia and Montenegro did not perform scheduled service during 2020 and therefore had zero ATKs reported.

APPENDIX E

SADIS COST ESTIMATES FOR 2022 TO 2025 FOR SADIS SERVICES PROVIDED BY THE UNITED KINGDOM METEOROLOGICAL OFFICE

TABLE 1: UKMO Cost and manpower resource projections until year 2025 (at 2021 prices)			Actual 2020	FOO 2021	Est 2022	Est 2023	Est 2024	Est 2025
INVENTORY REF:	Note	DESCRIPTION						
UK MET OFFICE COSTS								
1. Equipment								
Principally procured for SADIS								
comms link SADIS Gateway & Met Office	a		8,405	9,700	5,000	5,000	5,000	5,000
Not procured principally for SADIS								
message switch	b		4,000	4,000	4,500	4,500	4,500	5,000
AWS Server running costs	c		46,541	44,000	45,000	45,000	40,000	30,000
		Equipment sub total	58,946	57,700	54,500	54,500	49,500	40,000
2. Next Generation SADIS service provision								
WAFS 0.25 degree and IWXXM data set up.	d	Data feed set up costs for SADIS FTP	12,256	0	0	0	0	0
SADIS API	e	AWS Operating costs for new SADIS API	n/a	n/a	n/a	n/a	80,000	120,000
		Development sub total	12,256	0	0	0	80,000	120,000
3. Annual Staff Requirements								
Operating Support								
	f	First Line Support	4,488	4,500	5,000	5,000	5,500	5,500
	g	Second Line Support	20,352	20,000	20,500	20,500	21,000	21,000
	h	Third and Fourth Line Support	3,366	4,000	10,000	10,000	20,000	20,000
Additional Support								
Administrator	i	Executive Officer	64,235	65,930	66,500	66,500	67,000	67,000
International Aviation Management	i	Aviation Manager	7,665	8,112	8,500	8,500	9,000	9,000
Contract Procurement and Management	i	Senior Procurement Officer	1,560	1,642	1,700	1,800	1,800	1,900
Invoice Administration	i	Finance Officer & Business Acct	14,465	12,754	14,000	14,000	14,000	14,000
Travel Costs								
	j	METP-WG/MOG meetings & SCRAG	75	0	500	1,200	1,200	1,200
		Staff Requirement and travel sub total	116,206	116,938	126,700	127,500	139,500	139,600
Administrative costs								
	k	Cost of Capital	18,571	18,500	19,000	19,000	20,000	20,000
	l	Admin charges	247	200	400	400	400	400
		Total UKMO Costs	206,226	193,338	200,600	201,400	289,400	320,000

2 TABLE 2: NATS and other SADIS Cost Projections until 2025 (at 2021 prices)								
INVENTORY REF:	Note	DESCRIPTION	Actual 2020	FOO 2021	Est 2022	Est 2023	Est 2024	Est 2025
NATS Gateway Costs								
Staff Costs								
	m	Air Traffic Services Asst.	225,000	225,000	235,000	241,000	245,000	249,500
	m	Maintenance Engineer	7,000	7,000	7,300	7,400	7,500	7,600
	m	Administration Officer	27,800	27,800	29,300	30,000	30,900	31,500
		Staff Costs sub total	259,800	259,800	271,600	278,400	283,400	288,600
	m	Maintenance	9,700	9,700	9,700	9,700	9,700	9,800
		T&RE	0	0	1,600	1,700	1,800	1,800
		Total NATS Gateway Costs	269,500	269,500	282,900	289,800	294,900	300,200
3	n	CAA Administration Costs	980	980	1,000	1,000	1,000	1,000
4	o	ICAO Administration Costs	33,514	34,000	36,250	37,000	38,000	39,000
TOTAL SADIS COSTS			510,220	497,818	520,750	529,200	623,300	660,200

APPENDIX F

STATUS OF PAYMENTS OF THE ASSESSMENTS FOR 2020 AS AT 2 NOVEMBER 2021

STATES	Total amount billed for 2020 (SCRAG/20 Report, Appendix I)	Amount Collected as at 02 November 2021	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 02 November 2021
Albania	0.00				0.00
Algeria	453.51	453.51	12.74		0.00
Armenia	0.00				0.00
Australia	11,512.85	11,512.85			0.00
Austria	1,334.69	1,334.69			0.00
Azerbaijan	-592.91				- 592.91
Bahrain	2,148.77	2,148.77			0.00
Belgium	2,137.60	2,137.60			0.00
Bosnia and Herzegovina	0.00				0.00
Botswana	0.00				0.00
Bulgaria	100.97	100.97			0.00
Cabo Verde	45.86	45.86			0.00
Cameroon	-13.77			- 13.77	0.00
China: - Beijing	96,132.30	96,132.30			0.00
- Hong Kong	17,744.32	17,744.32			0.00
- Macau	339.25	339.25			0.00
Congo	7.57	7.57			0.00
Côte d'Ivoire	100.88	100.88			0.00
Croatia	108.19	108.19			0.00
Cyprus	0.00				0.00
Czechia	8.41	8.41			0.00
Denmark	920.48	920.48			0.00
Egypt	2,110.58	2,110.58			0.00
Equatorial Guinea	26.36	26.36			0.00
Estonia	-76.49				- 76.49
Eswatini	1.21				1.21
Finland	3,454.87	3,454.87			0.00
France	16,354.95	16,354.95			0.00
Gabon	0.00				0.00
Georgia	151.59	151.59			0.00
Germany	16,957.64	16,957.64			0.00
Ghana	6.44	6.44			0.00
Greece	676.29	676.29			0.00
Hungary	3,394.78	3,394.78			0.00
Iceland	2,622.42	2,622.42			0.00
India	19,271.39	19,271.39			0.00
Indonesia	9,902.51	9,902.51			0.00
Iraq	278.26				278.26
Ireland	15,776.42	15,776.42			0.00
Israel	1,787.35	1,787.35	1.39		0.00
Italy	3,513.51	3,513.51			0.00
Jordan	692.31	692.31			0.00
Kazakhstan	1,094.25	1,094.25			0.00
Kenya	953.81	953.81			0.00
Kuwait	2,701.80	2,701.80			0.00
Latvia	516.09	516.09			0.00

F-2

STATES	Total amount billed for 2020 (SCRAG/20 Report, Appendix I)	Amount Collected as at 02 November 2021	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 02 November 2020
Libya	- 121.75				- 121.75
Lithuania	- 290.76				- 290.76
Maldives	55.29	55.29			0.00
Malta	350.01	350.01			0.00
Mauritius	678.83	678.83			0.00
Montenegro	- 41.88			- 41.88	0.00
Morocco	1 837.08	1 837.08	12.01		0.00
Namibia	157.92	157.92			0.00
Netherlands	12 394.84	12 394.84			0.00
Nigeria	213.39	213.39			0.00
North Macedonia	25.17	25.17			0.00
Norway	1 246.89	1 246.89			0.00
Oman	2 299.65	2 299.65			0.00
Pakistan	367.43	367.43			0.00
Poland	2 324.12	2 324.12			0.00
Portugal	3 816.12	3 816.12			0.00
Qatar	27 735.82	27 735.82			0.00
Republic of Moldova	171.03	171.03			0.00
Romania	478.81	478.81			0.00
Russian Federation	22 177.12	22 177.12	33.27		0.00
Saudi Arabia	2 675.10	2 675.10			0.00
Senegal	1.65	1.65			0.00
Serbia	158.86	158.86			0.00
Seychelles	- 56.26				- 56.26
Slovakia	- 2.42				- 2.42
Slovenia	76.01	76.01			0.00
South Africa	2 427.99	2 427.99			0.00
Spain	9 527.83	9 527.83			0.00
Sweden	968.05	968.05			0.00
Switzerland	6 315.61	6 315.61	43.49		0.00
Thailand	13 249.72	13 249.72			0.00
Tunisia	457.08	457.08			0.00
Turkey	16 329.61	16 329.61			0.00
Ukraine	1 630.83	1 630.83			0.00
United Arab Emirates	32 984.76	32 984.76			0.00
United Kingdom	29 406.39	29 406.39			0.00
Viet Nam	4,880.57	4,880.57			0.00
Zimbabwe	0.00				0.00
TOTAL	431 563.82	432 480.59	102.90	- 55.65	- 861.12

STATES	Balance due for years prior to 2020	Amount Collected as at 02 November 2021	Administrative Charges Applied	Application of credit balance (or part of)	Unpaid amount (excess paid) as at 02 November 2021
Armenia*	9.68			9.68	0.00
Democratic People's Republic of Korea	140.33				140.33
Eswatini*	8.67				8.67
Iran (Islamic Republic of)	14 548.16				14 548.16
Libya	15.31				15.31
Namibia	74.82			74.82	0.00
Slovakia*	1.55			1.55	0.00
Syrian Arab Republic	2 266.26				2 266.26
Turkmenistan	1 228.35				1 228.35
TOTAL	18 293.13	0.00	0.00	86.05	18 207.08

* As per SCRAG Conclusion 19/6, invoices under GBP 30 are not invoiced.

APPENDIX G

ESTIMATED COST SHARES AND ASSESSMENTS FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022 *

STATES	2020 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2022 Estimated Costs (£ Sterling)	Share of Under-recovery for 2020 (£ Sterling)	Amount to be Assessed for 2022 (£ Sterling)
Albania	13 678	0.003%	15.92	1.30	17.22
Algeria	236 193	0.053%	274.83	22.43	297.26
Armenia	10 155	0.002%	11.82	0.96	12.78
Australia	8 369 914	1.870%	9 739.12	794.69	10 533.81
Austria	2 453 546	0.548%	2 854.91	232.95	3 087.86
Azerbaijan	3 501 381	0.782%	4 074.16	332.44	4 406.60
Bahrain	1 048 164	0.234%	1 219.63	99.52	1 319.15
Belarus	243 672	0.054%	283.53	23.14	306.67
Belgium	3 079 140	0.688%	3 582.85	292.35	3 875.20
Bosnia and Herzegovina	824	0.000%	0.96	0.08	1.04
Botswana	0	0.000%	0.00	0.00	0.00
Bulgaria	89 029	0.020%	103.59	8.45	112.04
Cabo Verde	113 572	0.025%	132.15	10.78	142.93
Cameroon	2 266	0.001%	2.64	0.22	2.86
China: - Beijing	113 998 396	25.472%	132 646.98	10 823.69	143 470.67
- Hong Kong	14 981 398	3.348%	17 432.15	1 422.42	18 854.57
- Macao	203 912	0.046%	237.27	19.36	256.63
Congo	17 699	0.004%	20.59	1.68	22.27
Côte d'Ivoire	142 515	0.032%	165.83	13.53	179.36
Croatia	88 283	0.020%	102.72	8.38	111.10
Cyprus	32 220	0.007%	37.49	3.06	40.55
Czechia	288 198	0.064%	335.34	27.36	362.70
Denmark	1 032 342	0.231%	1 201.22	98.02	1 299.24
Egypt	2 553 854	0.571%	2 971.63	242.48	3 214.11
Equatorial Guinea	19 325	0.004%	22.49	1.83	24.32
Estonia	0	0.000%	0.00	0.00	0.00
Eswatini	976	0.000%	1.14	0.09	1.23
Finland	2 437 613	0.545%	2 836.37	231.44	3 067.81
France	15 915 046	3.556%	18 518.53	1 511.07	20 029.60
Gabon	1 528	0.000%	1.78	0.15	1.93
Georgia	34 454	0.008%	40.09	3.27	43.36
Germany	16 410 239	3.667%	19 094.73	1 558.09	20 652.82
Ghana	19 292	0.004%	22.45	1.83	24.28
Greece	726 974	0.162%	845.90	69.02	914.92
Hungary	3 434 980	0.768%	3 996.90	326.14	4 323.04
Iceland	627 904	0.140%	730.62	59.62	790.24
India	13 134 260	2.935%	15 282.85	1 247.04	16 529.89
Indonesia	7 607 851	1.700%	8 852.39	722.33	9 574.72
Ireland	8 786 699	1.963%	10 224.08	834.26	11 058.34
Israel	2 247 046	0.502%	2 614.63	213.35	2 827.98
Italy	3 334 114	0.745%	3 879.53	316.56	4 196.09
Jordan	503 462	0.112%	585.82	47.80	633.62
Kazakhstan	1 056 120	0.236%	1 228.89	100.27	1 329.16
Kenya	1 328 843	0.297%	1 546.22	126.17	1 672.39
Kuwait	606 996	0.136%	706.29	57.63	763.92
Kyrgyzstan	54 478	0.012%	63.39	5.17	68.56
Latvia	348 212	0.078%	405.17	33.06	438.23

**ESTIMATED COST SHARES AND ASSESSMENTS
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022 ***

STATES	2020 Available Tonne-Kilometres in Scheduled Services (000)	Percentage Cost Share	Share of 2022 Estimated Costs (£ Sterling)	Share of Under-recovery for 2020 (£ Sterling)	Amount to be Assessed for 2022 (£ Sterling)
Libya	151 969	0.034%	176.83	14.43	191.26
Lithuania	14 539	0.003%	16.92	1.38	18.30
Luxembourg	10 759 895	2.404%	12 520.07	1 021.61	13 541.68
Maldives	103 768	0.023%	120.74	9.85	130.59
Malta	162 945	0.036%	189.60	15.47	205.07
Mauritius	339 428	0.076%	394.95	32.23	427.18
Montenegro	0	0.000%	0.00	0.00	0.00
Morocco	1 310 771	0.293%	1 525.20	124.45	1 649.65
Namibia	17 816	0.004%	20.73	1.69	22.42
Netherlands	15 412 062	3.444%	17 933.26	1 463.31	19 396.57
Nigeria	398 249	0.089%	463.40	37.81	501.21
North Macedonia	24 030	0.005%	27.96	2.28	30.24
Norway	1 801 123	0.402%	2 095.76	171.01	2 266.77
Oman	964 159	0.215%	1 121.88	91.54	1 213.42
Pakistan	1 595 431	0.356%	1 856.42	151.48	2 007.90
Poland	1 183 020	0.264%	1 376.55	112.32	1 488.87
Portugal	2 718 297	0.607%	3 162.97	258.09	3 421.06
Qatar	35 866 107	8.014%	41 733.31	3 405.34	45 138.65
Republic of Moldova	70 893	0.016%	82.49	6.73	89.22
Romania	344 557	0.077%	400.92	32.71	433.63
Russian Federation	25 803 791	5.766%	30 024.94	2 449.97	32 474.91
Saudi Arabia	8 632 868	1.929%	10 045.09	819.66	10 864.75
Senegal	67 705	0.015%	78.78	6.43	85.21
Serbia	229 033	0.051%	266.50	21.75	288.25
Seychelles	32 222	0.007%	37.49	3.06	40.55
Slovakia	297	0.000%	0.35	0.03	0.38
Slovenia	8 394	0.002%	9.77	0.80	10.57
South Africa	1 673 455	0.374%	1 947.21	158.89	2 106.10
Spain	6 656 733	1.487%	7 745.68	632.03	8 377.71
Sweden	714 663	0.160%	831.57	67.85	899.42
Switzerland	4 743 361	1.060%	5 519.31	450.36	5 969.67
Tajikistan	137 468	0.031%	159.96	13.05	173.01
Thailand	6 527 000	1.458%	7 594.73	619.71	8 214.44
Tunisia	348 269	0.078%	405.24	33.07	438.31
Turkey	22 156 092	4.951%	25 780.53	2 103.63	27 884.16
Ukraine	508 791	0.114%	592.02	48.31	640.33
United Arab Emirates	39 494 773	8.825%	45 955.57	3 749.89	49 705.46
United Kingdom	19 747 342	4.412%	22 977.73	1 874.94	24 852.67
Uzbekistan	518 559	0.116%	603.39	49.24	652.63
Viet Nam	5 113 136	1.143%	5 949.58	485.47	6 435.05
Zimbabwe	48 992	0.011%	57.01	4.65	61.66
TOTAL	447 538 766	100.000%	520 750.00	42 492.00	563 242.00

* Excludes exempted Least Developed Countries, States for which the access to SADIS is not operational and States which do not receive SADIS service.

APPENDIX H

AMOUNTS TO BE BILLED FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022 (£ Sterling)

STATES	Adjustment for 2020 (SCRAG/22-WP/7)	Assessment for 2022 (Attachment A)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2022
Albania	0.43	17.22	- 17.65	0.00
Algeria	- 338.35	297.26		- 41.09
Armenia	3.89	12.78	- 16.67	0.00
Australia	- 5 375.72	10 533.81		5 158.09
Austria	704.54	3 087.86		3 792.40
Azerbaijan	3 652.60	4 406.60	- 1 207.56	6 851.64
Bahrain	- 693.28	1 319.15		625.87
Belarus	141.98	306.67		448.65
Belgium	207.67	3 875.20		4 082.87
Bosnia and Herzegovina	0.64	1.04	- 1.68	0.00
Botswana	- 10.20	0.00		- 10.20
Bulgaria	- 25.59	112.04		86.45
Cabo Verde	57.26	142.93		200.19
Cameroon	- 24.52	2.86		- 21.66
China: - Beijing	33 466.62	143 470.67		176 937.29
- Hong Kong	- 4 951.02	18 854.57		13 903.55
- Macao	- 222.12	256.63		34.51
Congo	- 24.51	22.27		- 2.24
Côte d'Ivoire	78.03	179.36		257.39
Croatia	- 29.06	111.10		82.04
Cyprus	- 3.77	40.55	- 36.78	0.00
Czechia	- 370.04	362.70		- 7.34
Denmark	- 102.01	1 299.24		1 197.23
Egypt	- 54.32	3 214.11		3 159.79
Equatorial Guinea	- 5.81	24.32		18.51
Estonia	- 1.12	0.00		- 1.12
Eswatini	- 0.32	1.23		0.91
Finland	- 922.83	3 067.81		2 144.98
France	- 2 203.62	20 029.60		17 825.98
Gabon	0.08	1.93	- 2.01	0.00
Georgia	- 81.90	43.36		- 38.54
Germany	- 6 366.72	20 652.82		14 286.10
Ghana	7.71	24.28		31.99
Greece	- 129.41	914.92		785.51
Hungary	976.01	4 323.04		5 299.05
Iceland	- 1 482.35	790.24		- 692.11
India	- 3 374.01	16 529.89		13 155.88
Indonesia	- 2 523.89	9 574.72		7 050.83
Iraq	32.23	0.00		32.23
Ireland	- 3 944.67	11 058.34		7 113.67
Israel	- 70.95	2 827.98		2 757.03
Italy	- 508.81	4 196.09		3 687.28
Jordan	- 451.41	633.62		182.21
Kazakhstan	- 66.99	1 329.16		1 262.17
Kenya	325.41	1 672.39		1 997.80
Kuwait	- 1 523.16	763.92		- 759.24

H-2

**AMOUNTS TO BE BILLED
FOR THE PERIOD 1 JANUARY TO 31 DECEMBER 2022
(£ Sterling)**

STATES	Adjustment for 2020 (SCRAG/22-WP/7)	Assessment for 2022 (Attachment A)	Deduction of Unused Credit Balance from Previous Years	Total Amount to be Billed for 2022
Kyrgyzstan	5.29	68.56		73.85
Latvia	- 18.11	438.23		420.12
Libya	8.62	191.26		199.88
Lithuania	16.55	18.30	- 34.85	0.00
Luxembourg	2 089.79	13 541.68		15 631.47
Maldives	48.28	130.59		178.87
Malta	- 100.73	205.07		104.34
Mauritius	- 454.95	427.18		- 27.77
Montenegro	- 40.29	0.00		- 40.29
Morocco	- 927.17	1 649.65		722.48
Namibia	- 175.61	22.42		- 153.19
Netherlands	3 808.26	19 396.57		23 204.83
Nigeria	93.57	501.21		594.78
North Macedonia	- 1.58	30.24		28.66
Norway	- 2 092.38	2 266.77		174.39
Oman	- 1 200.78	1 213.42		12.64
Pakistan	12.60	2 007.90		2 020.50
Poland	- 373.54	1 488.87		1 115.33
Portugal	- 775.15	3 421.06		2 645.91
Qatar	13 846.55	45 138.65		58 985.20
Republic of Moldova	- 77.98	89.22		11.24
Romania	- 126.46	433.63		307.17
Russian Federation	6 272.05	32 474.91		38 746.96
Saudi Arabia	1 615.47	10 864.75		12 480.22
Senegal	77.50	85.21		162.71
Serbia	2.09	288.25		290.34
Seychelles	- 41.94	40.55		- 1.39
Slovakia	0.35	0.38		0.73
Slovenia	- 87.09	10.57		- 76.52
South Africa	- 1 710.60	2 106.10		395.50
Spain	- 3 200.27	8 377.71		5 177.44
Sweden	- 484.37	899.42		415.05
Switzerland	- 1 345.94	5 969.67		4 623.73
Tajikistan	13.35	173.01		186.36
Thailand	- 5 729.64	8 214.44		2 484.80
Tunisia	- 151.57	438.31		286.74
Turkey	4 578.54	27 884.16		32 462.70
Ukraine	- 802.85	640.33		- 162.52
United Arab Emirates	- 2 848.05	49 705.46		46 857.41
United Kingdom	- 10 218.51	24 852.67		14 634.16
Uzbekistan	0.00	652.63		652.63
Viet Nam	350.35	6 435.05		6 785.40
Zimbabwe	38.73	61.66	- 100.39	0.00
TOTAL	3 665.00	563 242.00	- 1 417.59	565 489.41

APPENDIX I

AMENDMENT TO ANNEX I, SADIS SERVICES, TO THE SADIS AGREEMENT

SADIS SERVICES

Editorial note. — Changes proposed by METP WG-MOG are highlighted in tracked-change mode as ~~deletions~~ or additions

ANNEX I

SADIS SERVICES

~~(2019-2020)~~ 2021-2022

Note.— A glossary of abbreviations as used in this Annex is provided at the end of the Annex.

1. Internet based (FTP) service

Products available on SADIS:

- a) distribution of WAFS upper-air forecasts in GRIB2 code form;
- b) distribution of WAFS SIGWX forecasts in BUFR code form;
- c) distribution of WAFS SIGWX forecasts in PNG chart form;
- d) distribution of OPMET information in alphanumeric format (METARs, TAFs, SIGMET, special AIREPs, volcanic ash advisories, tropical cyclone advisories and space weather advisories) from those regions whose OPMET information is needed to satisfy approved requirements in the regions served by SADIS;
- e) distribution of OPMET information in IWXXM format (METARs, TAFs, SIGMET, AIRMET, volcanic ash advisories, tropical cyclone advisories and space weather advisories) from those States who are distributing their data internationally via the Regional Opmet Centres;
- ~~e~~f) distribution of meteorological information in graphical format (e.g. Volcanic Ash Graphics).

Note: Detailed descriptions are contained within the SADIS User Guide (Parts 1 and 2) of the service.

2. Collection service

- a) collection of OPMET information by the SADIS Gateway from States in accordance with approved requirements stated by PIRGs and actioned by Meteorological Operations Working Group (WG-MOG/SADIS);
- b) monitoring, validation and repair of data received at the SADIS Gateway to the required standards, for the provision of real-time scheduled reports and for off-line quality control analysis.

3. Back-up service

The recognised back-up to failure if the SADIS FTP service is via the USA administered, WAFS Information File Service (WIFS). SADIS FTP users are encouraged to arrange back-up accounts with the WIFS provider via <https://aviationweather.gov/wifs/>.

Note 1: - Usage restrictions apply. Further information is provided in the SADIS User Guide Part 1 (Administrative).

Note 2: - It is the responsibility of the SADIS FTP user to arrange and test back-up accounts with WIFS.

4. User support service

- a) 24-hour help line/faults desk;
- b) dissemination of administrative messages, including amendments to bulletin headers given in the SADIS User Guide (Parts 1 and 2).

5. File transfer protocol service

Provision of facilities dedicated to establishing and receiving an FTP connection, using password protected access, to the SADIS FTP server that enables the transfer of WAFS upper-air forecasts in GRIB code, WAFS SIGWX forecasts in BUFR code, WAFS SIGWX forecasts in PNG chart form and OPMET data over the Public Internet. The FTP service implements Digital Signatures and Digital Certificates to confirm data integrity and authenticity of the data.

6. Fair Use of SADIS Products

- a) The use of SADIS is continually monitored to ensure the volume of data being downloaded is not excessive and does not impede the operation of the SADIS FTP Servers;
- b) A user who is responsible for >10% of the total volume of data being downloaded from SADIS FTP Server in a single week will be considered as excessive usage;
- c) If users are deemed to be excessively downloading data then the SADIS Manager will contact the user with a request to the use to reduce the volume data being downloaded. The SADIS Manager may at their discretion, limit or terminate access to the SADIS FTP server without recourse to the user if the excessive use continues.

7. Security

- a) The SADIS FTP server will be continually monitored for lawful security purposes;
- b) Users are not permitted to share passwords and are responsible for keeping passwords secure;
- c) The SADIS Manager reserves the right to suspend or terminate a user's access to the SADIS FTP Server if the users use of the system or the user has failed to observe the obligations of 7 b) has resulted or is likely to result in an increased risk to security of the SADIS FTP Server;
- d) The SADIS Manager reserves the right to restrict access to the SADIS FTP Server in the event of a security threat and users acknowledge that access to the SADIS FTP Server may be restricted or unavailable until such time the security threat has been resolved.

Glossary of abbreviations

<i>AIREP</i>	Air report
<i>BUFR</i>	Binary Universal Form for the Representation of meteorological data (code)
<i>FTP</i>	File Transfer Protocol (Internet based)
<i>GRIB2</i>	Gridded binary edition 2 (code)
<i>IWXXM</i>	The ICAO Meteorological Information Exchange Model is a data format for reporting aviation weather information in XML/GML format
<i>METAR</i>	Routine aviation weather report in code form
<i>METP</i>	Meteorology Panel
<i>OPMET</i>	Operational meteorological (information or data)
<i>PIRG</i>	ICAO planning and implementation regional group
<i>PNG</i>	Portable Network Graphics (image format)
<i>SADIS</i>	Secure Aviation Data Information Service
<i>SADIS FTP</i>	Internet based provision of SADIS
<i>SADIS Gateway</i>	The United Kingdom message-handling system which receives data from the Aeronautical Fixed Service for transmission on SADIS
<i>SADISOPSG</i>	SADIS Operations Group. Tasked with the oversight of SADIS until its dissolution in 2015. Superseded by Meteorological Operations Working Group (WG-MOG) under the Meteorology Panel (METP). Reference retained for historical purposes.
<i>SIGMET</i>	Information of specified en-route weather phenomena which may affect the safety of aircraft operations
<i>SIGWX</i>	Significant weather
<i>TAF</i>	Aerodrome forecast in code form
<i>WAFS</i>	World area forecast system
<i>WG-MOG</i>	The oversight of the SADIS service is undertaken by the Meteorological Panel (METP) which has tasked Met Operations Group (WG-MOG/SADIS) to carry out this responsibility, each year they meet to ensure the service is meeting the users needs.

APPENDIX J

AMENDMENT TO ANNEX II, SADIS INVENTORY, TO THE SADIS AGREEMENT

APPENDIX A – Update to SADIS Agreement Annex II as approved by METP-WG/MOG15.
Approved deletions are shown in ~~strikethrough~~, and additions are highlighted

ANNEX II

SADIS INVENTORY

~~(2019-2020~~ 2021-2022)

The inventory items identified below cover the equipment and staffing required to provide, operate and maintain the Secure Aviation Data Information Service (SADIS). The inventory includes: communications circuits, communications back-up system, procured services, and staff. It should be noted that some equipment items form part of a wider infrastructure. Costs of some individual items cannot be separated from the required infrastructure that includes a significant part of the development of the software and technical configuration. The inventory is in accordance with the SADIS User Guide.

1. EQUIPMENT

A. Key components of SADIS FTP infrastructure and communications circuits

SADIS infrastructure consists of the following:

i) **Solely procured for SADIS (major components)**

NIL

Note: In November 2019 SADIS FTP was migrated to use Amazon Web Services infrastructure (see Section 2A) which is a procured service.

ii) **Not procured principally for SADIS**

a) Met Office Message switch (MetSwitch): Total investment £328K¹ of which 1.23 per cent is attributable to the SADIS FTP service usage: switching data to operational FTP service;

b) NATS SADIS gateway function software (developed specifically for the gateway as part of the NATS CoreMet system);

c) Met Office operational monitoring software;

Note. — This enables the operational monitoring of the SADIS FTP service and ensures problems can be identified and resolved in a timely manner.

d) Met Office Service Desk equipment;

Note. — Equates to 3.5 per cent of the total share of Met Office IT Operations equipment.

B. SADIS data back-up system

¹ budgeted cost for providing MetSwitch service during the fiscal year 2018/2019.

The recognised back-up for SADIS FTP in the event of a failure is via the USA administered, WAFS Information File Service (WIFS). SADIS FTP users are encouraged to arrange back-up accounts with the WIFS provider via <https://aviationweather.gov/wifs/>.

Note 1: - Usage restrictions apply. Further information is provided in the SADIS User Guide Part 1 (Administrative)

Note 2: - It is the responsibility of the SADIS FTP user to arrange and test back-up accounts with WIFS.

2. PROCURED SERVICES

A. Amazon Web Services (AWS) elements used by the Met Office in the operation of SADIS FTP:

AWS Service	Specification	Quantity	What the service is used for:
EC2	t3.medium 2* vCPU (Intel Xeon Platinum 8000 series) 4 GiB Memory Network Bandwidth: ≤5Gbps; EBS Bandwidth ≤1.50 Gbps)	3	2* FTP Server and 1 Apps Server
S3	N/A	612	Data Storage : Ingestion; FTP Content; IWXXM; AuthN; Logs & Alerts.
DynamoDB	1x Table Primary partition key: report_id Read/write capacity mode: On-Demand	1	Stores incoming IWXXM reports from AV OPMET Data Services
Route53	N/A	1	DNS
Lambda	N/A	N/A	Various Serverless Functions including housekeeping, Log formatting, Alerting Management, packaging IWXXM data, etc
Cloudwatch	N/A	N/A	Log Aggregation
NAT Gateway	N/A	1	Access
VPC	N/A	1	
Kinesis Data Stream	N/A	1	Log Entry Routing
Kinesis Firehose	N/A	2	
DynamoDB	N/A		Alert Management
Athena	N/A		

B. NATS Gateway function:

- i) Communication circuits between Met Office and NATS infrastructure site; and
- ii) System maintenance.

3. ANNUAL STAFF REQUIREMENTS

A. Met Office

i) First Line Support

Help Desk

Skill

- 1. Service desk (first point of contact enquiries)

Incident Management and customer enquiries

Note.— The Service Desk acts as a first point of contact for all inquiries, including those concerning the OPMET Gateway function. Complex inquiries will be passed to a relevant expert. Experts are available either on a 24-hour rota basis, or as a daytime support with limited on-call capability

ii) Second Line Support

24-hour IT Operations support

Skill

- 1. Shift Leader (ITCS)
- 2. Networks Incident Manager (NIM)

Technical Supervisor, incident handling
Service Continuity, system monitoring

iii) Third and Fourth Line Support

Normal working hours support and “best endeavors”

Skill

- 1. Message Switching Manager
- 2. Message Switching Staff
- 3. AWS Technical Support

Incident handling, server adjustments
Incident handling and account changes
AWS expertise, support and guidance

iv) Additional support

Day support

Resource

- 1. Administrator
- 2. International aviation management
- 3. Contract procurement and management
- 4. Invoice Administration

144 staff-days of senior stakeholder relationship manager (SADIS manager)
14 staff-days of aviation business head
4 staff-days of senior procurement manager
20 staff-days of finance assistant and 15 staff-days of senior finance manager

B. NATS infrastructure site – Data Services (OPMET Gateway function)

Note 1. —Data Services provide the OPMET Gateway function, which is provided from a single operational site, but with a full capability at an alternative site. Staff are available either on a 24-hour basis, or as a daytime support with on-call capability.

Note 2. — The resource demand to provide the SADIS Gateway service is the standard required staff days needed to provide the SADIS service. It comprises 6 watches providing the H24 element of the service and day support administrative staff. The cost recovery NATS submits to the SCRAG will represent actual staff-days required to provide the service

Role and Responsibilities

Resource

- | | |
|---|--------------------------|
| 1. Operational Staff
- Operational Staff relates to the H24 function in ROC LONDON. Monitor, validate, record & report on issues raised through the SADIS Gateway operation. | 521 staff-days per annum |
| 2. Engineering Staff
- Engineering Staff includes the duties carried out by the Engineering Day support team and an H24 engineers for the support of SADIS. | 20 staff-days per annum |
| 3. Administration Staff
- The Administration Office carries out the documentation creation and amendments, adaptation changes, investigations and meeting attendance of the SADIS Gateway operation. | 63 staff-days per annum |

C. Bought-in services

Additional support and maintenance agreements with third parties are in place to provide additional third line AWS support of the SADIS FTP services.