
APPENDIX P**STATUS OF Y2K PREPAREDNESS IN ISCS AND SADIS PROVIDER STATES****Part I****REPORT OF ISCS Y2K STATUS BY WAFC WASHINGTON****1. INTRODUCTION**

1.1 The Y2K problem represents a serious concern for the users of any computer system, especially on that contains information that is required for the safe operation of aircraft. Lack of information due to system availability will cause, at a minimum, unnecessary delays and possibly severe disruptions to the aviation community.

2. SOLUTION IMPLEMENTATION

2.1 The U.S. recognised that a Y2K problem existed with the first group of STAR workstations that were purchased (attachment). One alternative fix involved the replacement of some hardware and software to become compliant. Another was to replace the current workstation with a more powerful processor that was already Y2K compliant. After investigating the various alternatives the U.S. decided that it would be most cost effective to simply replace the existing workstations with a more powerful processor that is Y2K certified by the manufacturer.

2.2 The U.S. National Weather Service has confirmed that the terrestrial lines and the satellite up and down link connections are compliant and have been tested to ensure this is the case.

3. ALTERNATIVE DATA COLLECTION PLAN

3.1 WAFC Washington plans to approach the issue of missing data from providers on an individual basis. They will assess the extent of the problem, determine if alternative means of capturing the data are available and devise a solution. In the event of widespread missing data, the Aviation Weather Center in Kansas City, Missouri will coordinate with other data collection offices to establish alternative means of collection.

4. CONCLUSION

4.1 The U.S. ISCS will be Y2K compliant before 1/1/00 and will have increased the capability of the workstation as compared with the one originally provided with the system.

STAR 4 SYSTEMS REQUIRING UPGRADE TO PENTIUM SYSTEM

Antigua	Costa Rica	Jamaica	Trinidad
Argentina	Dom. Republic	Nicaragua	Uruguay
Aruba	Ecuador	Panama	USA Hawaii
Bahamas	El Salvador	Papua New Guinea	USA Miami TPC
Barbados (CMI)	Fiji	Paraguay	USA NCEP
Belize	Grenada	Peru	USA San Juan
Bolivia		Philippines	USA SSMC II AOR
Brazil	Guatemala	Saint Maarten	USA SSMC II POR
Chile	Guyana	St. Lucia	Vanuatu
Colombia	Honduras	Surinam	Venezuela
	Indonesia		

**OTHER STAR4 SYSTEMS WITH WHICH WE HAVE EITHER BEEN ASSOCIATED OR
HAVE AN INTEREST BUT DO NOT REQUIRE UPGRADE TO PENTIUM**

COUNTRY	REASON UPGRADE NOT NEEDED
Barbados, met	Upgraded by 2 port option
Cayman Islands	Purchased by Cayman after Pentium standard established
Cuba, met	Installed after Pentium standard established
Cuba aviation	Installed after Pentium standard established
Curacao	Upgraded by 2 port option
Mexico	Upgraded bilaterally
South Africa	Purchased after Pentium standard established (not yet installed)
Switzerland WMO	Alden donation, Pentium PC
USA K.C., MO, AWS	Purchased after Pentium standard established
Vietnam	Installed after Pentium standard established
Canada, ICAO	Not a STAR4, STAR4 like functions only, does not need upgrade (Per Alden 10-15-98)

Part II
‘YEAR 2000’ PROJECT AT WAFC LONDON

Interim Statement

1. INTRODUCTION

1.1 The aim of the Year 2000 programme for SADIS and WAFS is to assure users of the continuity of WAFS services, i.e. WAFS products generated at the UKMO and incoming OPMET data from the Global Telecommunication System (GTS) transferred through the UKMO message-switching system (TROPICS) and received at:

- a) the SADIS VSAT Port (the end-point of the SADIS system);
- b) the terrestrial user ports on the UKMO message-switch (TROPICS)

1.2 The UK (as SADIS provider) currently operates an interim Gateway for OPMET and receives data from the AFS/AFTN (Aeronautical fixed service/telecommunication network), the GTS and some direct links. Two-Way Very Small Aperture Terminals (VSATS) also send data from South Africa and Switzerland. **Annex A** identifies the SADIS Gateway concept.

2. DISCUSSION

2.1 The UKMO approach to the Year 2000 issue is both systematic and comprehensive as can be seen from **Annex B**. All major systems have already been tested for Y2K compliance. These include; production systems, message switching systems (e.g. the UKMO message switch TROPICS) and dissemination systems (e.g. SADIS).

2.2 Users

Major user groups of International WAFS data and products are shown in **Annex C**. These include:

- a) SADIS users
- b) UK National Air Traffic Services (NATS)
- c) Commercial Airlines

2.3 Products

The products distributed by SADIS and used by other WAFS recipients include:

- a) Alphanumeric OPMET from all ICAO regions (including METARS, TAFs and SIGMETS)

- b) Global GRIB data (gridded binary code version 1) and BUFR encoded Significant Weather (SIGWX) data (as required)
- c) SIGWX and upper wind/temperature charts in T4 format as required by ICAO Regional Air Navigation Plans.

2.4 Testing

Link testing and end to end testing where appropriate using off-line testing facilities is being planned with appropriate users in these categories.

2.5 Current Year 2000 Compliance Status of WAFC London WAFS and SADIS Broadcast

The SADIS system received an interim Y2K compliance certificate on 24th November 1998. This demonstrates that the SADIS broadcast elements containing a date and time element were tested using a 'test-rig' at the Matra Marconi Space (MMS) premises in Poynton which is considered to be fully representative of the operational configuration. There are no plans for live testing on the SADIS broadcast because of the potential impact on user systems connected to the SADIS VSAT. An abbreviated version of the latest SADIS test plan and results is attached at **Annex 1**.

2.6 Contingency Planning

As risks are identified, contingency plans are being developed and put in place to ensure continuity of service to users. For example, our numerical model will be run out to T+ 144 on 31 December 1999 as a contingency to mitigate our model failing on 1 /1/2000. Tests are also planned with WAFC Washington to ensure adequate mutual back-up is available.

2.7 The quality of WAFS products generated at WAFC London and the availability of OPMET data relayed by WAFC London is dependent on the ingestion of data from external networks such as the GTS and the AFTN

2.8 UK NATS and External Systems

UK NATS have a programme of Year 2000 tests. This programme includes the compliance testing of the AFTN Message Switch which receives OPMET data over the Aeronautical Fixed Telecommunications Network (AFTN) and the Common ICAO Data Exchange Network (CIDIN) this providing data for WAFC London. The diagram in **Annex E** shows the links between UK NATS and the UKMO through which NATS not only receive WAFS products and OPMET but also deliver data from the AFTN for the SADIS up-link.

User systems and WAFS products

2.9 WAFS data types including the GRIB (version 1) format, the T4 chart format, the alphanumeric OPMET format and BUFR SIGWX data (as required) are Year 2000 compatible and will not change. However users should ensure that the software used in their own systems can correctly process the date fields in each data type.

2.10 Particularly, attention is drawn to the GRIB (and BUFR) code that represents the year and the century as separate bytes. The correct interpretation of the code (as agreed by both WMO and ICAO) is as follows:

On December 31st 1999	— the year byte will be 1999	— and the century 20
On January 1st 2000	— the year byte will be 100	— and the century 20
On December 31st 2000	— the year byte will be 100	— and the century 20
On January. 1st 2001	— the year byte will be 1	— and the century 21

2.11 Users should also be aware that they should test all software used on their systems for year 2000 compliance, for instance any GRIB decoders on which their systems are dependent.

User Systems and SADIS

2.12 A WAFC London paper (IP- 10) regarding the year 2000 issue, which was presented at the METG/8 Meeting in October 1998, included the following statement.

"The year 2000 issue may have significant repercussions on the efficacy of SADIS for individual users if their own data dissemination systems are not Year 2000 compliant. The EUR region, having the largest number of SADIS installations, may be most affected by year 2000 problems unless these are resolved. Much effort has been given by WAFC London and equipment suppliers to ensure that the operation of SADIS is not impaired. However it may be that there are still some States who may experience problems."

2.13 Communication with Users

Users will be kept fully informed of the latest issues and developments through the following channels: the UKMO web site, the SADIS help desk, the WAFC London Newsletter and appropriate ICAO or WMO Meetings.

3. Conclusions

3.1 The UKMO as WAFC London is undertaking a comprehensive Year 2000 test programme to ensure continuity of its service to its aviation users.

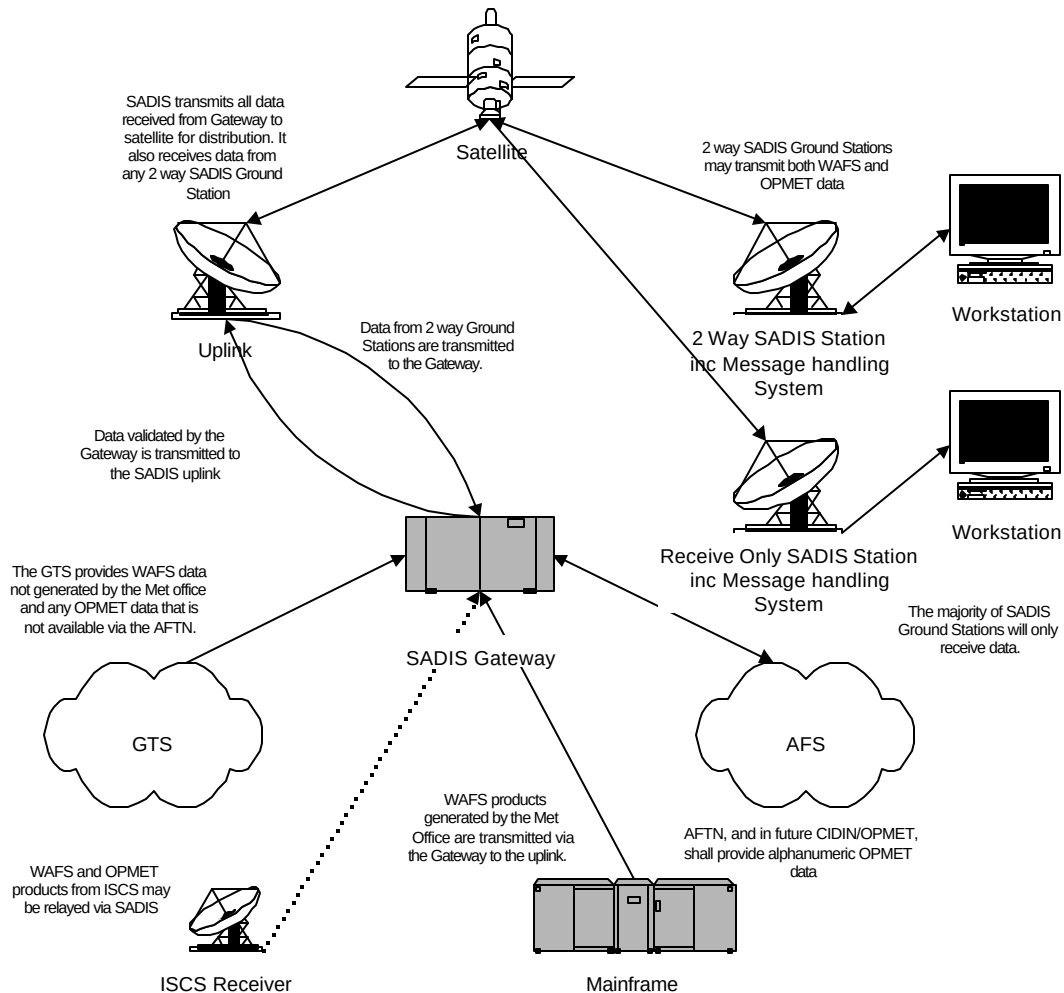
3.2 Link testing and end to end testing using off-line testing facilities is being planned with selected users. However, users should note that there are no plans for live testing on the SADIS broadcast because of the potential impact on user systems connected to the SADIS VSAT.

3.3 Both the quality of WAFS products generated at WAFC London and the availability of OPMET data relayed by WAFC London are dependent on the ingestion of data from external networks such as the GTS and the AFTN.

3.4 As risks are identified, countermeasures and/or contingency plans will be made.

3.5 Users are advised to ensure that where possible their own systems including both hardware and software are fully Y2K compliant to ensure continuity of service. Where this is not possible that they are advised to seek to identify alternative means of supplying services.

3.6 Users will be kept fully informed of the latest issues and developments through the following channels: the Met Office web site, the SADIS help desk, the WAFC London Newsletter and appropriate ICAO and WMO Meetings.



YEAR 2000 TESTS AT WAFC LONDON

(Presented by the United Kingdom)

In 1996 the UK Met Office Year 2000 Project was initiated as a top priority with the objective of ensuring continuity of service to our users over the millenium. The project has progressed through a number of stages. Stages 0-3 have focused on unit testing the Met Office internal systems. The current Stage 4 of the Project is focused on end to end testing and business continuity to generate assurance of the supply chain from observer to user.

Stage 0 Raise awareness

Completed Feb 97

Stage 1 Assessment and strategy

Completed Jul 97

To assess the scale of the problem for the Met Office and provide an estimate of the costs.

Stage 2 Detailed Analysis and Planning

Completed Jan 98

To analyse computer hardware, software, building infrastructure systems and the supply chain to determine the work to be done.

Stage 3 Interim Compliance Programme

Completed Dec 98

To check, change as necessary and unit test the systems identified at Stage 2 and record the actions required.

Stage 4 End-to end testing and contingency.

In progress

To test integrated systems with selected users, change as necessary and retest. Contingency plans and countermeasures are also being developed to ensure continuity of service as areas of risk are identified. Users will be kept fully informed of the latest issues and developments through the following channels, the UKMO web site, the SADIS help desk, the WAFC London Newsletter and appropriate ICAO and WMO Meetings.

Status of SADIS

Under Stage 4, 'End-to End testing', it is planned to do further SADIS testing using the 'test-rig' located at Poynton. It is not currently envisaged to do live testing on the SADIS broadcast unless this is authorized by the SADIS Operations Group because of the potential impact on user systems connected to the SADIS VSAT.

Status of SADIS Gateway

A programme for further end-to-end testing is currently being discussed between the Met Office and UK NATS with the objective of providing extra assurance of the continuity of flow of information to the SADIS Gateway.

Status of Communications Satellites

1. Introduction

a) Earth Stations

Cable and Wireless have issued a customer statement saying:

“the equipment at our earth stations for providing satellite services is millenium compliant.”

b) INTELSAT

For INTELSAT, the SADISOPSG is informed of the testimony of Ramu Poyarazu, Vice-President and Chief Information Officer, INTELSAT to a hearing before the US SENATE Special Committee on the Year 2000.

Technical Problem

Our satellite Manufacturers have advised us that there are no known Year 2000 problems on our satellites. Typically, a communication satellite does not use a time and a date, it uses a satellite reference, what we commonly refer as a satellite local time. This is a reference to the sun...etc.

Note: This statement is on the internet web-site <http://www.intelsat.int> ...then select Y2K page etc.

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