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| WORLD METEOROLOGICAL ORGANIZATION  COMMISSION FOR BASIC SYSTEMS  -----------------------------  FOURTH MEETING OF  INTER-PROGRAMME EXPERT TEAM ON DATA REPRESENTATION MAINTENANCE AND MONITORING  GENEVA, SWITZERLAND, 30 MAY - 3 JUNE 2016 |  | IPET-DRMM-IV / Doc. 7.1  (22. 5. 2016)  -------------------------  ITEM 7.1  ENGLISH ONLY |

MIGRATION TO TABLE DRIVEN CODE FORMS (TDCF)

Status of migration by WWW Monitoring Exercise

*Submitted by the Secretariat*

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**Summary and Purpose of Document**

The WWW Monitoring includes the Special MTN Monitoring (SMM). These records the stations contained in bulletins received by Regional Telecommunication Hubs (RTHs) on the Main Telecommunication Network (MTN). The records produced during the SMM period of 1-15 January 2016 were analyzed to identify how many station reports in BUFR were recorded.

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**ACTION PROPOSED**

The meeting is invited to note the information in this document and take action as required to further progress migration.

**DISCUSSIONS**

The results of the Special MTN Monitoring (SMM) for reports that were exchanged in BUFR format during 1-15 January 2016 are shown in the Figures 1-3 [[1]](#footnote-1) and summarized in the Table 1. (Note; the statistics for April 2016 were assessed, but there appeared to be problems with the gathering of the monitoring statistics from the participating RTHs).

It should be noted that in the statistics,

a) only reports from stations in the RBSN or RBCN are counted;

b) for SYNOP, only reports at 00, 06, 12 or 18 UTC are counted;

c) for TEMP, only reports at 00 or 12 UTC are counted.

d) it therefore means that stations that report at other times are not included in the statistics.

GENERAL OVERVIEW (Figures 1-3)

Surface BUFR reports: In Regions II and VI the distribution of surface in TDCF is similar (though often lower than) for TAC. For many observing sites it is clear that the Member is capable of producing reports in TDCF but did not always do so (though it should be borne in mind that this is exactly the pattern that would be seen if TDCF were introduced during the month).

In Regions III and V, many Members have been good progress in creating TDCF reports, but there are still some that have not yet started distributing reports.

Progress with migration in Region I is hindered by the overall lack of observations. ASECNA has assisted its Member countries by converting observations to TDCF.

Upper-air BUFR reports: All regions have made some progress to reporting upper air reports in TDCF. Some countries (most visible in the plot because of their size are Canada and Russia) had started issuing reports in TDCF for some stations but had not completed the migration.

These statistics only reflect whether an upper air report was received from the country; it does not indicate whether it was a “native” report or converted from a TAC report.

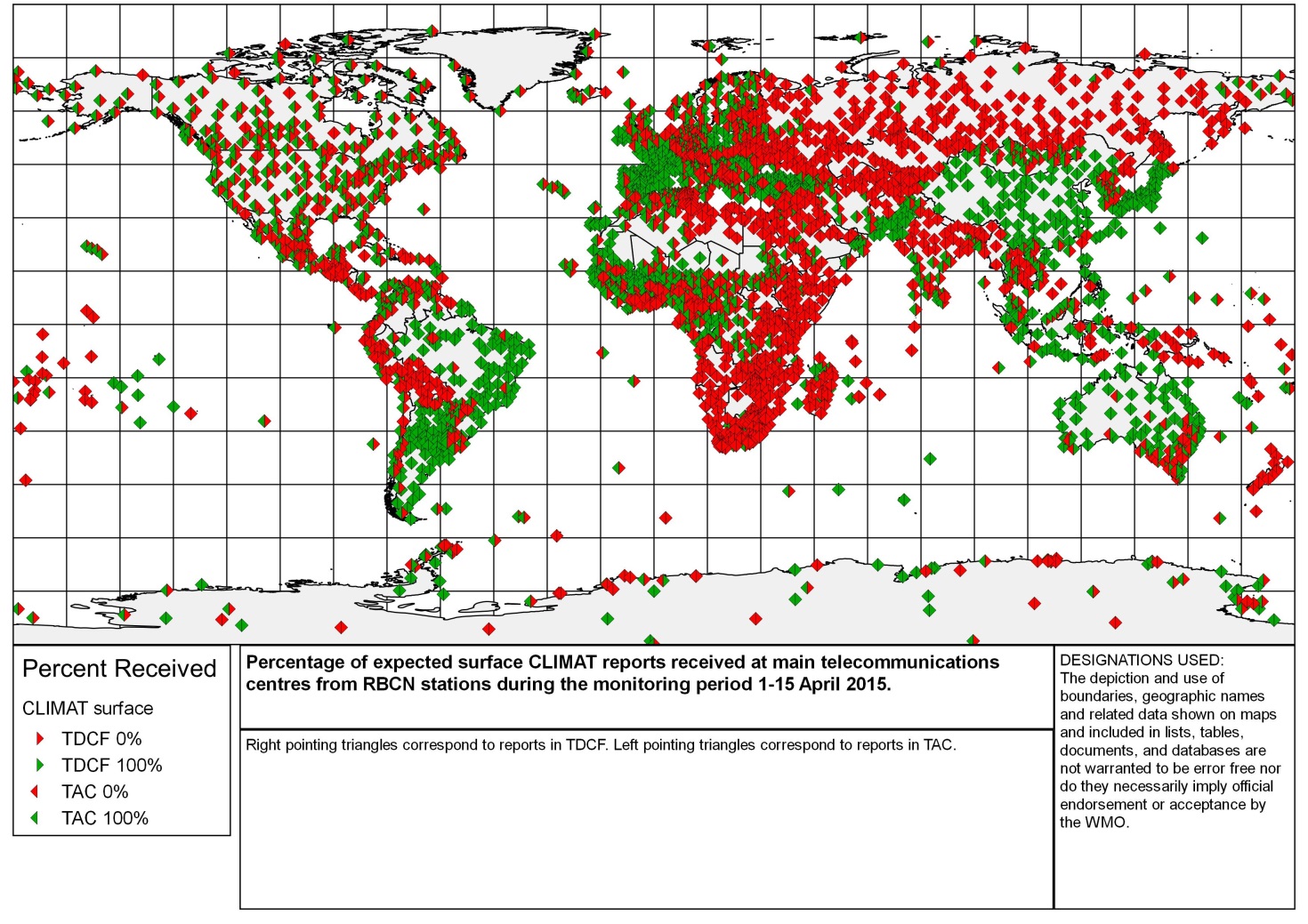
Climate BUFR reports: Although many countries produced CLIMAT reports in TDCF, many did not. There was no clear Regional pattern for the migration, suggesting that the Regional Associations may have concentrated on those reports used for operational weather forecasting.

The statistics suggest that the UK had ceased distributing reports in TAC and reported only the CLIMAT reports.

Figure 1: Surface BUFR reports for RBSN stations captured by the SMM exercise during 1-15 January 2016 shown as a percentage of the expected number of reports.

Figure 2: Upper-air BUFR reports for RBSN stations captured by the SMM exercise during 1-15 January 2016 shown as a percentage of the expected number of reports.

Figure 3: Climate BUFR reports for RBSN stations captured by the SMM exercise during 1-15 January 2016 shown as a percentage of the expected number of reports.

Table 1: Average by country of the number of surface and upper-air reports from RBSN stations and climate reports from RBCN stations recorded in BUFR messages during the SMM of 1-15 January 2016. The number of reports expected from each station is 60 (surface), 30 (upper-air) and 1 (climate), respectively.

**Surface RBSN**

| **Region/Country/Area** | **TAC %** | **TDCF %** |
| --- | --- | --- |
| **1** |  |  |
| ALGERIA | 92 | 91 |
| ANGOLA | 17 | 0 |
| BENIN | 95 | 0 |
| BOTSWANA | 46 | 0 |
| BOUVET ISLAND (NORWAY) | 0 | 0 |
| BURKINA FASO | 95 | 90 |
| BURUNDI | 35 | 0 |
| CABO VERDE | 94 | 94 |
| CAMEROON | 26 | 0 |
| CANARY ISLANDS (SPAIN) | 100 | 100 |
| CENTRAL AFRICAN REPUBLIC | 17 | 16 |
| CEUTA AND MELILLA (SPAIN) | 100 | 73 |
| CHAD | 52 | 44 |
| COMOROS | 97 | 42 |
| CONGO | 81 | 67 |
| COTE D'IVOIRE | 98 | 80 |
| DEMOCRATIC REPUBLIC OF THE CONGO | 6 | 0 |
| DJIBOUTI | 8 | 0 |
| EGYPT | 91 | 72 |
| EQUATORIAL GUINEA | 0 | 94 |
| ERITREA | 0 | 0 |
| ETHIOPIA | 43 | 0 |
| GABON | 60 | 54 |
| GAMBIA | 84 | 21 |
| GHANA | 69 | 0 |
| GUINEA | 7 | 0 |
| GUINEA-BISSAU | 46 | 43 |
| KENYA | 78 | 58 |
| LESOTHO | 1 | 0 |
| LIBERIA | 3 | 3 |
| LIBYA | 33 | 0 |
| MADAGASCAR | 62 | 12 |
| MADEIRA | 100 | 83 |
| MALAWI | 16 | 0 |
| MALI | 64 | 55 |
| MAURITANIA | 54 | 41 |
| MAURITIUS | 93 | 100 |
| MOROCCO | 49 | 0 |
| MOZAMBIQUE | 39 | 0 |
| NAMIBIA | 49 | 0 |
| NIGER | 85 | 0 |
| NIGERIA | 11 | 0 |
| OCEAN ISLANDS | 56 | 40 |
| RWANDA | 48 | 0 |
| SENEGAL | 81 | 64 |
| SEYCHELLES | 32 | 30 |
| SIERRA LEONE | 0 | 0 |
| SOMALIA | 0 | 0 |
| SOUTH AFRICA | 92 | 58 |
| SOUTH SUDAN | 0 | 0 |
| SUDAN | 0 | 0 |
| SWAZILAND | 50 | 0 |
| TOGO | 94 | 2 |
| TUNISIA | 90 | 78 |
| UGANDA | 31 | 0 |
| UNITED REPUBLIC OF TANZANIA | 74 | 30 |
| WESTERN SAHARA | 40 | 0 |
| ZAMBIA | 7 | 0 |
| ZIMBABWE | 63 | 39 |
| **2** | **91** | **61** |
| AFGHANISTAN, ISLAMIC STATE OF | 0 | 0 |
| BAHRAIN | 16 | 14 |
| BANGLADESH | 53 | 16 |
| CAMBODIA | 8 | 9 |
| CHINA | 99 | 66 |
| DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA | 100 | 81 |
| HONG KONG, CHINA | 100 | 65 |
| INDIA | 95 | 95 |
| IRAN, ISLAMIC REPUBLIC OF | 97 | 0 |
| IRAQ | 55 | 0 |
| JAPAN | 100 | 57 |
| KAZAKHSTAN | 100 | 81 |
| KUWAIT | 98 | 43 |
| KYRGYZSTAN | 100 | 0 |
| LAO PEOPLE'S DEMOCRATIC REPUBLIC | 79 | 0 |
| MACAO, CHINA | 100 | 0 |
| MALDIVES | 80 | 73 |
| MONGOLIA | 100 | 57 |
| MYANMAR | 38 | 30 |
| NEPAL | 70 | 0 |
| OMAN | 95 | 21 |
| PAKISTAN | 72 | 55 |
| QATAR | 82 | 73 |
| REPUBLIC OF KOREA | 100 | 74 |
| RUSSIAN FEDERATION (IN ASIA) | 96 | 79 |
| SAUDI ARABIA | 76 | 42 |
| SRI LANKA | 85 | 0 |
| TAJIKISTAN | 95 | 0 |
| THAILAND | 100 | 95 |
| TURKMENISTAN | 100 | 0 |
| UNITED ARAB EMIRATES | 81 | 55 |
| UZBEKISTAN | 100 | 0 |
| VIET NAM | 96 | 72 |
| YEMEN | 1 | 0 |
| **3** | **63** | **32** |
| ARGENTINA | 98 | 0 |
| BOLIVIA | 46 | 0 |
| BRAZIL | 61 | 55 |
| CHILE | 58 | 32 |
| COLOMBIA | 64 | 43 |
| ECUADOR | 56 | 2 |
| FRENCH GUIANA | 75 | 100 |
| GUYANA | 36 | 0 |
| ISLANDS (88: 800 - 998) | 0 | 97 |
| PARAGUAY | 69 | 51 |
| PERU | 71 | 67 |
| SURINAME | 25 | 0 |
| URUGUAY | 66 | 46 |
| VENEZUELA | 31 | 0 |
| **4** | **84** | **58** |
| ANTIGUA AND BARBUDA | 63 | 0 |
| BAHAMAS | 14 | 0 |
| BARBADOS | 0 | 0 |
| BELIZE | 50 | 0 |
| BERMUDA | 100 | 100 |
| CANADA | 94 | 63 |
| CAYMAN ISLANDS | 72 | 0 |
| CLIPPERTON | 0 | 0 |
| COLOMBIA (SAN ANDRES AND PROVIDENCIA ISLANDS) | 80 | 58 |
| COSTA RICA | 62 | 0 |
| CUBA | 63 | 0 |
| CURACAO, ST MAARTEN AND ARUBA (NL) | 98 | 0 |
| DOMINICA | 70 | 0 |
| DOMINICAN REPUBLIC | 82 | 0 |
| EL SALVADOR | 21 | 0 |
| GRENADA | 100 | 0 |
| GUADELOUPE, ST MARTIN, ST BARTHELEMY AND OTHER FRENCH ISLANDS IN THE VICINITY | 33 | 0 |
| GUATEMALA | 42 | 0 |
| HAITI | 0 | 0 |
| HONDURAS | 63 | 0 |
| JAMAICA | 94 | 0 |
| MARTINIQUE | 72 | 50 |
| MEXICO | 64 | 19 |
| NICARAGUA | 0 | 0 |
| PANAMA | 10 | 0 |
| PUERTO RICO AND US POSSESSIONS IN THE CARIBBEAN AREA | 100 | 98 |
| SAINT LUCIA | 86 | 70 |
| ST EUSTATIUS AND BONAIRE (NL) | 0 | 100 |
| ST. PIERRE AND MIQUELON (FRANCE) | 100 | 0 |
| TRINIDAD AND TOBAGO | 98 | 0 |
| UNITED STATES OF AMERICA | 96 | 92 |
| UNITED STATES OF AMERICA (ALASKA) | 82 | 78 |
| VENEZUELA (ISLA DE AVES) | 0 | 0 |
| **5** | **75** | **64** |
| AMERICAN SAMOA | 25 | 0 |
| AUSTRALIA | 84 | 77 |
| BRUNEI DARUSSALAM | 97 | 0 |
| CHINA | 47 | 46 |
| COOK ISLANDS | 36 | 35 |
| DETACHED ISLANDS (91 : 753, 754) | 99 | 0 |
| DETACHED ISLANDS (91: 960 - 998) | 0 | 0 |
| FIJI | 83 | 73 |
| FRENCH POLYNESIA (AUSTRAL ISLANDS) | 99 | 100 |
| FRENCH POLYNESIA (MARQUESAS ISLANDS) | 97 | 97 |
| FRENCH POLYNESIA (SOCIETY ISLANDS) | 100 | 99 |
| FRENCH POLYNESIA (TUAMOTU ISLANDS AND GAMBIER ISLANDS) | 100 | 75 |
| INDONESIA | 96 | 86 |
| ISLANDS (96: 995, 996) | 100 | 91 |
| ISLANDS IN THE PACIFIC OCEAN NORTH OF THE EQUATOR | 34 | 10 |
| KIRIBATI | 85 | 0 |
| MALAYSIA | 100 | 100 |
| NAURU | 0 | 0 |
| NEW CALEDONIA | 80 | 60 |
| NEW ZEALAND | 100 | 98 |
| NIUE | 18 | 18 |
| PAPUA NEW GUINEA | 9 | 7 |
| PHILIPPINES | 87 | 78 |
| PHOENIX ISLANDS | 28 | 0 |
| SAMOA | 26 | 0 |
| SINGAPORE | 100 | 100 |
| SOLOMON ISLANDS | 82 | 74 |
| TIMOR-LESTE | 0 | 0 |
| TOKELAU (AND SWAINS IS.) | 0 | 0 |
| TONGA | 88 | 88 |
| TUVALU | 43 | 0 |
| VANUATU | 84 | 56 |
| **6** | **95** | **79** |
| ARMENIA | 100 | 98 |
| AUSTRIA | 100 | 96 |
| AZERBAIJAN | 100 | 10 |
| BELARUS | 100 | 90 |
| BELGIUM | 100 | 69 |
| BOSNIA AND HERZEGOVINA | 97 | 97 |
| BULGARIA | 100 | 0 |
| CROATIA | 92 | 79 |
| CYPRUS | 98 | 48 |
| CZECH REPUBLIC | 100 | 97 |
| DENMARK AND FAROE ISLANDS | 98 | 76 |
| ESTONIA | 100 | 91 |
| FINLAND | 100 | 100 |
| FRANCE | 100 | 100 |
| GEORGIA | 89 | 64 |
| GERMANY | 83 | 100 |
| GIBRALTAR | 100 | 100 |
| GREECE | 92 | 88 |
| GREENLAND (DENMARK) | 94 | 45 |
| HUNGARY | 100 | 100 |
| ICELAND | 60 | 57 |
| IRELAND | 100 | 100 |
| ISRAEL | 100 | 57 |
| ITALY | 93 | 100 |
| JORDAN | 57 | 0 |
| KAZAKHSTAN (IN EUROPE) | 100 | 79 |
| LATVIA | 85 | 83 |
| LEBANON | 97 | 0 |
| LITHUANIA | 100 | 100 |
| LUXEMBOURG | 100 | 50 |
| MALTA | 100 | 0 |
| MONTENEGRO | 91 | 46 |
| NETHERLANDS | 100 | 93 |
| NORWAY | 94 | 88 |
| POLAND | 100 | 100 |
| PORTUGAL | 97 | 90 |
| REPUBLIC OF MOLDOVA | 100 | 0 |
| ROMANIA | 100 | 100 |
| RUSSIAN FEDERATION (IN EUROPE) | 99 | 59 |
| SERBIA | 93 | 91 |
| SLOVAKIA | 100 | 100 |
| SLOVENIA | 100 | 93 |
| SPAIN | 96 | 96 |
| SWEDEN | 99 | 99 |
| SWITZERLAND AND LIECHTENSTEIN | 100 | 90 |
| SYRIAN ARAB REPUBLIC | 40 | 0 |
| THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA | 100 | 95 |
| TURKEY | 91 | 90 |
| UKRAINE | 94 | 6 |
| UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND | 98 | 98 |
| **Antarctic** | **48** | **36** |
| STATIONS IN THE ANTARCTIC | 48 | 36 |

**Upper air**

| **Region/Country/Area** | **TAC %** | **TDCF %** |
| --- | --- | --- |
| **1** | **21** | **5** |
| ALGERIA | 80 | 0 |
| ANGOLA | 0 | 0 |
| BENIN | 40 | 0 |
| BOTSWANA | 0 | 0 |
| BURKINA FASO | 47 | 0 |
| CABO VERDE | 27 | 0 |
| CAMEROON | 18 | 0 |
| CANARY ISLANDS (SPAIN) | 97 | 100 |
| CENTRAL AFRICAN REPUBLIC | 10 | 0 |
| CHAD | 0 | 0 |
| CONGO | 20 | 0 |
| COTE D'IVOIRE | 43 | 0 |
| DEMOCRATIC REPUBLIC OF THE CONGO | 0 | 0 |
| EGYPT | 38 | 0 |
| ERITREA | 0 | 0 |
| ETHIOPIA | 17 | 0 |
| GABON | 20 | 0 |
| GHANA | 0 | 0 |
| GUINEA | 0 | 0 |
| LIBYA | 0 | 0 |
| MADAGASCAR | 0 | 0 |
| MADEIRA | 50 | 50 |
| MALAWI | 0 | 0 |
| MALI | 14 | 0 |
| MAURITANIA | 8 | 0 |
| MAURITIUS | 0 | 0 |
| MOROCCO | 22 | 0 |
| MOZAMBIQUE | 0 | 0 |
| NAMIBIA | 43 | 0 |
| NIGER | 63 | 0 |
| NIGERIA | 0 | 0 |
| OCEAN ISLANDS | 33 | 35 |
| SENEGAL | 22 | 18 |
| SOMALIA | 0 | 0 |
| SOUTH AFRICA | 77 | 77 |
| SUDAN | 0 | 0 |
| TUNISIA | 27 | 0 |
| UNITED REPUBLIC OF TANZANIA | 0 | 0 |
| ZAMBIA | 0 | 0 |
| ZIMBABWE | 37 | 0 |
| **2** | **80** | **45** |
| AFGHANISTAN, ISLAMIC STATE OF | 32 | 0 |
| BANGLADESH | 40 | 0 |
| CHINA | 100 | 95 |
| DEMOCRATIC PEOPLE'S REPUBLIC OF KOREA | 30 | 0 |
| HONG KONG, CHINA | 100 | 100 |
| INDIA | 46 | 48 |
| IRAN, ISLAMIC REPUBLIC OF | 60 | 0 |
| IRAQ | 23 | 0 |
| JAPAN | 98 | 98 |
| KAZAKHSTAN | 100 | 0 |
| KUWAIT | 73 | 0 |
| MALDIVES | 43 | 43 |
| MONGOLIA | 32 | 32 |
| MYANMAR | 0 | 0 |
| OMAN | 72 | 0 |
| PAKISTAN | 57 | 0 |
| QATAR | 0 | 0 |
| REPUBLIC OF KOREA | 100 | 32 |
| RUSSIAN FEDERATION (IN ASIA) | 91 | 0 |
| SAUDI ARABIA | 58 | 51 |
| SRI LANKA | 0 | 0 |
| TAJIKISTAN | 0 | 0 |
| THAILAND | 20 | 20 |
| TURKMENISTAN | 37 | 0 |
| UNITED ARAB EMIRATES | 93 | 0 |
| VIET NAM | 100 | 100 |
| **3** | **58** | **41** |
| ARGENTINA | 60 | 2 |
| BOLIVIA | 0 | 0 |
| BRAZIL | 79 | 71 |
| CHILE | 45 | 17 |
| COLOMBIA | 50 | 23 |
| ECUADOR | 7 | 0 |
| FRENCH GUIANA | 100 | 100 |
| GUYANA | 0 | 0 |
| ISLANDS (88: 800 - 998) | 47 | 47 |
| PERU | 0 | 0 |
| VENEZUELA | 0 | 0 |
| **4** | **93** | **79** |
| BAHAMAS | 53 | 50 |
| BARBADOS | 100 | 97 |
| BELIZE | 87 | 77 |
| BERMUDA | 87 | 73 |
| CANADA | 99 | 45 |
| CAYMAN ISLANDS | 80 | 60 |
| COLOMBIA (SAN ANDRES AND PROVIDENCIA ISLANDS) | 50 | 37 |
| COSTA RICA | 0 | 0 |
| CURACAO, ST MAARTEN AND ARUBA (NL) | 95 | 93 |
| DOMINICAN REPUBLIC | 0 | 0 |
| GUADELOUPE, ST MARTIN, ST BARTHELEMY AND OTHER FRENCH ISLANDS IN THE VICINITY | 77 | 77 |
| JAMAICA | 77 | 73 |
| MEXICO | 68 | 68 |
| NICARAGUA | 0 | 0 |
| PANAMA | 47 | 40 |
| PUERTO RICO AND US POSSESSIONS IN THE CARIBBEAN AREA | 100 | 100 |
| TRINIDAD AND TOBAGO | 67 | 63 |
| UNITED STATES OF AMERICA | 98 | 98 |
| UNITED STATES OF AMERICA (ALASKA) | 100 | 97 |
| **5** | **67** | **54** |
| AMERICAN SAMOA | 100 | 100 |
| AUSTRALIA | 48 | 48 |
| BRUNEI DARUSSALAM | 13 | 0 |
| COOK ISLANDS | 0 | 0 |
| FIJI | 90 | 83 |
| FRENCH POLYNESIA (AUSTRAL ISLANDS) | 0 | 0 |
| FRENCH POLYNESIA (MARQUESAS ISLANDS) | 50 | 50 |
| FRENCH POLYNESIA (SOCIETY ISLANDS) | 100 | 100 |
| FRENCH POLYNESIA (TUAMOTU ISLANDS AND GAMBIER ISLANDS) | 50 | 50 |
| INDONESIA | 99 | 95 |
| ISLANDS (96: 995, 996) | 47 | 43 |
| ISLANDS IN THE PACIFIC OCEAN NORTH OF THE EQUATOR | 89 | 89 |
| KIRIBATI | 50 | 3 |
| MALAYSIA | 98 | 0 |
| NAURU | 0 | 0 |
| NEW CALEDONIA | 100 | 100 |
| NEW ZEALAND | 86 | 88 |
| PAPUA NEW GUINEA | 0 | 0 |
| PHILIPPINES | 93 | 27 |
| SINGAPORE | 100 | 100 |
| TUVALU | 43 | 20 |
| VANUATU | 7 | 0 |
| **6** | **81** | **54** |
| ARMENIA | 43 | 23 |
| AUSTRIA | 100 | 100 |
| BELGIUM | 53 | 0 |
| BULGARIA | 50 | 50 |
| CROATIA | 100 | 77 |
| CYPRUS | 17 | 0 |
| CZECH REPUBLIC | 100 | 100 |
| DENMARK AND FAROE ISLANDS | 100 | 100 |
| ESTONIA | 50 | 50 |
| FINLAND | 50 | 50 |
| FRANCE | 99 | 97 |
| GERMANY | 100 | 100 |
| GIBRALTAR | 0 | 0 |
| GREECE | 46 | 13 |
| GREENLAND (DENMARK) | 96 | 94 |
| HUNGARY | 100 | 50 |
| ICELAND | 70 | 7 |
| IRELAND | 100 | 100 |
| ISRAEL | 100 | 100 |
| ITALY | 99 | 98 |
| JORDAN | 50 | 50 |
| LATVIA | 23 | 0 |
| LEBANON | 0 | 0 |
| LITHUANIA | 0 | 0 |
| NETHERLANDS | 60 | 60 |
| NORWAY | 73 | 73 |
| POLAND | 100 | 100 |
| PORTUGAL | 45 | 47 |
| ROMANIA | 100 | 97 |
| RUSSIAN FEDERATION (IN EUROPE) | 99 | 11 |
| SERBIA | 100 | 97 |
| SLOVAKIA | 100 | 100 |
| SLOVENIA | 0 | 0 |
| SPAIN | 84 | 82 |
| SWEDEN | 74 | 73 |
| SWITZERLAND AND LIECHTENSTEIN | 100 | 100 |
| THE FORMER YUGOSLAV REPUBLIC OF MACEDONIA | 0 | 0 |
| TURKEY | 100 | 98 |
| UKRAINE | 31 | 0 |
| UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND | 91 | 33 |
| **Antarctic** | **48** | **37** |
| STATIONS IN THE ANTARCTIC | 48 | 37 |

1. Percentage of expected number of reports is indicated by colours (green, blue, yellow and red) in a square. The left or right half square is the percentage of TAC or TDCF, respectively. [↑](#footnote-ref-1)