

WORLD METEOROLOGICAL ORGANIZATION
THIRD COORDINATION MEETING OF THE WORLD WEATHER
INFORMATION SERVICE (WWIS) WEBSITE HOSTS
(OFFENBACH, GERMANY, 18-20 OCTOBER 2011)



FINAL REPORT

EXECUTIVE SUMMARY

The Third Coordination Meeting of the World Weather Information Service (WWIS) Website Hosts observed that the WWIS had performed well since its Second Meeting (Toulouse, France, 12-14 May 2009). There had been a commendable increase of the number of National Meteorological and Hydrological Services (NMHSs) that joined the WWIS initiative between 2009 and 2011, notably in Africa and South America. The cumulative page visits had also increased steadily over the years and were expected to reach the one billion mark by the end of 2011.

However, it was noted that a few challenges faced the WWIS initiative, which are as follows: the number of NMHSs participating in providing weather forecasts is too low and hence the number of city forecasts are on the low side; the rate of updating the forecasts is not uniform across Members; the temporal range of forecasts vary greatly across Members; and the Website itself was observed to be in need of revamping. It was agreed to take several steps to meet these challenges, including:

- Encouraging more Members to join WWIS in order to increase the number of cities on WWIS from the current about 1,400 cities, which is too low. In this regard, it was also agreed to develop a guide aimed at increasing participation of WMO Members in the WWIS initiative;
- Requesting participating Members to provide longer-range forecasts;
- Considering ways to improve the appearance as well as the navigation aspects of the Website (some specific steps to take in this regard were agreed upon);
- Improving on the regularity, consistency and frequency of forecast updates from Members; and,
- Frequent monitoring the performance of the WWIS.

It was agreed that the technical architecture should be common for all the language versions. The Meeting agreed on the way forward on how to unify the Website, including developing a unified database for all languages.

The Meeting decided to develop a revamped version of WWIS with Geographical Information System (GIS) capability. The Hong Kong Observatory (HKO) would develop a prototype version for comments by other language hosts. It was agreed to examine the possibility of keeping a basic version of WWIS without the GIS capability, and another with such capability possibly with Google Maps or another similar platform.

Regarding taking advantage of the mobile technology in WWIS, some specific priorities were agreed upon as follows:

- **Priority 1:** Provide the “MyWeather” iPhone application service in additional languages (**Post Meeting Note:** *Soon after the meeting, “MyWeather” was renamed, and is now called, “MyWorldWeather”*);
- **Priority 2:** Develop an Android version for the “MyWorldWeather” application; and,
- **Priority 3:** Provide a mobile layout for the WWIS Website and to enhance weather information on the “MyWorldWeather” application, such as providing weather warnings from MeteoAlarm and SWidget.

1. INTRODUCTION

At the kind invitation of the Government of Germany, Deutscher Wetterdienst (DWD) hosted the "Third Coordination Meeting of the World Weather Information Service (WWIS) Website Hosts" in Offenbach, Germany, from 18 to 20 October 2011. The meeting participants were comprised of delegates representing: China (Chinese), Hong Kong, China (English), Germany (German), Italy (Italian), Oman (Arabic) and Spain (Spanish). The Meeting was chaired by Mr Axel Thomalla (Germany). Apologies were received from France, Portugal and the Russian Federation delegates, as they were not able to participate on this occasion. The supporting list of participants is attached as Annex I to this report.

1.1 Opening of the Meeting

Dr Jochen Dibbern, Member of the Executive Board of Directors and Head of the Technical Infrastructure and Operations of DWD, delivered the welcoming address to the participants. Dr Dibbern pointed out the importance of the meeting in improving the WWIS Website. He reiterated the commitment of DWD to the successful implementation of the German version of the WWIS. Dr Dibbern referred to the programme of the meeting and requested all participants to contribute to covering it successfully. He also cited the importance of the initiative taken by all participating Members in the WWIS.

Mr Armstrong Y.C. Cheng (HKO), coordinator of WWIS and the Severe Weather Information Centre (SWIC) Websites, thanked DWD for its generosity of hosting the Meeting. Mr Cheng then reported that the cumulative page visits of the WWIS website had exceeded 950 million and were expected to hit the one billion mark later in 2011. He also reported that there were 137 members supplying 1,453 city forecasts for the WWIS. Mr Cheng thanked all language hosts, without whom the WWIS could not have been so successful. He then pointed out that there were challenges ahead, including how to: increase the number of city forecasts; improve the Website; sustain its development; and, meet the increasing demand on mobile weather services. Mr Cheng called for active participation in the discussions on addressing various technical issues and setting direction for future development of the WWIS.

Mr Samuel Muchemi (World Meteorological Organization (WMO) Secretariat Representative) thanked the DWD for hosting the meeting and for the excellent arrangements they had made. Mr Muchemi expressed the appreciation and the high regard that WMO held all the language hosts for their commitment and performance beyond the call of duty, resulting in the creation and operation of the successful WWIS Website. He thanked the participants for having availed themselves for the meeting and noted with appreciation that their participation had been funded by their respective national meteorological services.

Mr Federico Galati (WMO Secretariat) expressed his pleasure to join the meeting as a new participant to:

1. share Web expertise (infrastructure and development) from the WMO perspective, and,
2. to technically advise on new Web 2.0 and 3.0 technologies that could be of interest, help and benefit to the WWIS Website Hosts, with a view to indicate how modern Web technology is evolving.

The Meeting would consider ways to improve the appearance, accessibility and ergonomics of WWIS Website.

The provisional agenda for the meeting was adopted without any changes. This agenda is attached as Annex II to this report.

2. REVIEW OF CURRENT STATUS OF WWIS SINCE THE SECOND WWIS MEETING (TOULOUSE, FRANCE, 2009) (Presented by Mr Armstrong Cheng (HKO))

2.1 Mr Cheng informed the Meeting that there had been a commendable increase of the number of NMHSs that joined the WWIS initiative between 2009 and 2011, notably in Africa and South America. There was, particularly, an appreciable increase of participation by Least Developed Countries (LDCs) in Africa. Page view statistics were presented, and it was noted that in 2010, there had been over 146 million visits. The cumulative page visits since inception of WWIS had also increased steadily over the years and were expected to reach the one billion mark by the end of 2011.

2.2 It was pointed out that an increase in the number of cities for which forecasts were available had been recorded after the Sixteenth World Meteorological Congress (Cg–XVI, Geneva, Switzerland, 16 May - 3 June 2011).

2.3 As regards new entrants, the Bahamas, British Caribbean, Guyana, Kuwait and New Caledonia were the latest countries and territories to join.

2.4 The Meeting was also informed that the Polish version was expected to be ready for launching by early 2012.

2.5 A recap of WWIS milestones were also presented as follows:

Dates:	Milestones:
14 December 2001	Operational trial with climatological information in English
9 December 2002	Operational trial with forecast information in English
22 May 2003	Launch of the Arabic version of the WWIS
23 February 2004	Launch of the Chinese version
23 March 2004	Launch of the Portuguese version
23 March 2005	Start of formal operation
23 March 2006	Joining of the WMO domain: wmo.int
12 September 2006	Launch of the Spanish version
31 January 2007	Launch of the French version
22 May 2008	Winning of the 2008 Stockholm Award
23 March 2009	Launch of the German version
28 August 2009	Launch of the Italian version
29 April 2010	Launch of the English Google Earth (Future) version
18 March 2011	Launch of the Russian version
23 March 2011	Launch of the Italian Google Earth (Future) version
10 October 2011	Launch of the "MyWorldWeather" – WWIS iPhone application

2.6 A summary of the highlights were presented as follows:

Highlights of 2009:

- Iran and Afghanistan started to provide city forecasts in February;
- The German version was launched in March;
- New Caledonia started providing city forecasts in April;
- The Italian version was launched in August;

- The practice of writing capital cities in capital letters in English, French, Italian and Spanish versions implemented; and,
- Guyana started providing city forecasts in December.

Highlights of 2010:

- Kuwait started providing city forecast in January;
- The Google Earth (Future) version of WWIS was launched in April;
- The Google Earth version was showcased in the “MeteoWorld” Pavilion at the Shanghai World Expo 2010 from May to October; and,
- Burkina Faso, Burundi and Rwanda joined the WWIS in December.

Highlights of 2011:

- Botswana and Ecuador started providing city forecasts in January;
- The Russian version was launched in March;
- The Italian Google Earth version was launched in March;
- Luxembourg joined WWIS in April;
- India enhanced their participation by providing 71 more city forecasts in May;
- The total number of city forecasts on WWIS exceeded 1,400 for the first time.
- The Bahamas and British Caribbean Territories started to provide city forecasts in July; and,
- “MyWorldWeather”, the mobile version of WWIS, was launched on iPhone platform in October.

2.7 Challenges

The following challenges were noted:

- The number of cities on WWIS (about 1,400) was observed to be on the low side in comparison with other global providers who display about 100,000 cities. A user would therefore be more likely to depend on such a provider as opposed to WWIS even though WWIS contains more dependable official forecasts;
- While WWIS displays one to seven day forecasts, other websites, available on the web, have up to 9-day forecasts provided;
- The number of forecast elements provided on WWIS are also less than those found on other websites;
- It was noted that there was a need to increase regularity of updates from Members;
- Temporal and spatial resolution: updating is up to once a day depending on individual NMHSs for WWIS, while for some competing websites, there are hourly forecast updates; and,

- The “MyWorldWeather” application has the challenge of too few cities hence it would sometimes display forecasts of a nearest city that is too faraway from a user, and this would not be very helpful.

2.8 To turn challenges into opportunities, the Meeting agreed that it would be necessary to:

- Encourage more Members to join WWIS;
- Provide longer-range forecasts;
- Provide forecasts of more weather elements;
- Improve on the regularity, consistency and frequency of forecast updates from Members;
- Consider ways to improve the Website and harmonize forecasts;
- Develop more mobile applications;
- Request more Members to name Focal Points (FPs) for ease of coordinating WWIS matters; and,
- Monitor performance, taking into consideration capabilities of Members in terms of financial and human resources, which could be committed to the project.

The Meeting felt that they should not focus too much on the comparisons with commercial sites, which display high resolution (temporal and spatial) forecasts since such providers are not constrained to deliver high-quality, official forecasts as those provided on WWIS.

2.9 Regarding the “MyWorldWeather” application, which is currently available on the iOS platform and in English language, the Meeting considered the possibility of developing a generic mobile layout usable by all mobile platforms. It was further suggested that, they could learn more about this from practices by NMHSs, for example, the “MyObservatory” application developed by HKO. The “MyObservatory” application is also available on iOS and Android platforms, the two most popular mobile platforms in Hong Kong. The “MyObservatory” application is also available on mobile website to serve other users. It may be valuable to keep in view of the development of HTML5 technology as this might be widely adopted across different mobile platforms.

3. WORKING TOWARDS INCREASING THE NUMBER OF PARTICIPATING MEMBERS AND THE NUMBER OF CITIES FOR WHICH INFORMATION IS PROVIDED ON WWIS (General Discussion)

3.1 It was agreed to develop a guide aimed at increasing participation of WMO Members in the WWIS initiative. The following were agreed upon as elements of the Guide:

- Introduction to WWIS including its purpose and aims;
- How Met Services stand to benefit from participating in WWIS;
- How an NMHS could effectively participate including: number of cities expected from an NMHS; and number of times for updating forecasts;
- Guidance on steps to take to initiate participation in WWIS, or to enhance the level of participation; and,

- Templates of the standard form that NMHSs would need to complete while joining the initiative.

This Guide would then be circulated to all NMHSs for action by Members, and also to Presidents of Regional Associations as one of the ways to influence increased participation of NMHSs in the WWIS. It would also be Web enabled with an on-line and off-line version. Mr Galati would evaluate to make it available as an on-line E-book.

3.2 The Secretariat was requested to coordinate with HKO and the hosts to provide the first draft of the Guide.

3.3 The following measures aimed at improving coordination were agreed upon:

- regularly update the list and contacts on WWIS country FPs. This was found necessary in order to ensure easier coordination and to reduce incidences of failure by NMHSs to send forecast updates for protracted lengths of time;
- encourage cross-linking of NMHS Webpages to WWIS. This would help in guiding users to WWIS from NMHSs' websites and thus increase traffic to WWIS. It would also enhance cross-referencing of WWIS and thus improve ranking by search engines; and,
- continue sending reports to country WWIS FPs in order to keep them, informed, interested, and hopefully motivated to contribute to the success of WWIS.

3.4 It was also agreed that more coordination was necessary to ensure that changes in the different language versions were all effected at the same time. To achieve these measures, the WWIS meetings were proposed to continue to be held every two years. Urgent issues would be discussed through online Web conferencing meetings and the WWIS Google Group that was to be created.

4. EXPERIENCE SHARING PRESENTATIONS BY WWIS WEBSITE HOSTS

4.1 The Arabic Version of WWIS (Presented by Messrs Hussein Al Maqbali and Abdallah Al-Breiki (Oman))

The experts from Oman explained the technical specifications of the WWIS system in Oman as follows:

Difficulties with implementing the Google Earth version were experienced in which Google Earth comes out blank. It was agreed that Oman work with HKO to address this problem [*Post meeting note: the problem was solved by installing a driver on the notebook*].

They further presented the following points:

- Web updates were very smooth since Oman had adopted the same web structure as the one used by HKO, but added new fields (columns) as necessary, for Arabic translation;
- It will be necessary to coordinate updates for the different Web hosts in the future. After discussion, it was agreed that updates would be carried out once every month. For less than ten (10) cities, HKO would send updates within one (1) week. If more than ten (10) cities, they would be sent two (2) weeks in advance. Publishing dates of the websites would be Monday to Wednesday during the second week of the month. These procedures would come to force in December 2011; and,

- There should be more frequent meetings. This could be achieved through introduction of online arrangements and/or teleconferencing. Mr Galati mentioned the possibility of having regular on-line remote Web meetings using the WMO Webex as a unified communication approach that would save travel costs and would be an eco-friendly Green-IT approach. It could be used as long as the Meeting took into account the different time zones of the WWIS Website Hosts.

4.2 The Chinese Version of WWIS (Presented by Mr ZHAO Rui, China)

During his presentation Mr Zhao:

- spoke about the competition from a Chinese commercial Website that had more information than WWIS;
- informed the Meeting that cooperation with other Websites had brought success to the China Weather Channel. The WWIS could learn from this experience and institute cooperation with other websites;
- pointed out the problem of lack of uniformity in the number of forecast days among NMHSs that contributed to WWIS;
- indicated that the WWIS Website needed to be worked on to make it look modern;
- recommended that the Meeting should use Google maps and demonstrated how China used Google Maps to showcase World Weather in the Shanghai Expo 2010; and,
- stressed on the strength of using weather widgets and how they could be beneficial to WWIS.

4.3 The German Version of WWIS (Presented by Mr Rudolf Mohr, Germany)

4.3.1 Mr Rudolf Mohr of DWD gave a presentation of the participation of DWD in the WWIS initiative. Mr Mohr made the following points:

- The German version of WWIS went live in March 2009 as one of the more than 20 different Websites of DWD;
- He described the system which is comprised of six (6) virtual machines supporting the WWIS German version;
- The updating process of the WWIS Website is manual, non-standard and time-consuming. This process needs to be optimized to be more efficient;
- The Website does not correspond to Web Content Accessibility Guidelines (WCAG);
- The technical architecture should be common for all the language versions. The strategy would be to unify the website including a unified database for all languages. Under this structure, it would be possible to dump data from English to German and other languages. First step of consolidation would be a common database model. After consolidation of the architecture, it would be discussed whether a central hosting of the WWIS Websites would be possible;
- DWD administrative policies, at the moment, do not allow the installation of the Google Earth version; and,

- He suggested that the Meeting should have a basic version of WWIS without GIS capability and another one with such capability possibly with Google Maps or any other similar platform. He further pointed out that this was necessary because use of Google Maps leads to a level of dependence on Google.

4.3.2 Mr Galati mentioned the need to improve the use of metadata for each website with a view to help increase hit popularity by search engines. He also expressed the need to: clean-up, as much as possible, the code of the application; have a more structured XML code to be used or exchanged by search engines; and to adopt a standard approach in commenting and naming code by developers of WWIS. He also raised the issue of archiving web data for future reference, including by search engines.

4.3.3 Mr Cheng recommended to include relevant keywords of WWIS Website in the field of 'meta name="keywords"' on the front page of all language sites.

4.4 The Italian Version of WWIS (Presented by Lieutenant Colonel Giuseppe Leonforte, Italy)

Lt. Col. Leonforte made a presentation and made the following points:

- The Italian version of WWIS started in August 2009 and had reached 8,000 to 9,000 page visits per day on average;
- There was a special challenge in that, at the Met Service of Italy, there was no WWIS Team as such, but rather, only one person did everything (Lt. Col. Leonforte). It was hoped to have dedicated resources for WWIS by the second half of 2012;
- Italy launched the Google Earth version in March 2011;
- He suggested that users would be more keen on using iPhone version than Google Earth version according the experience in Italy, so it is a higher priority, and therefore prefers to put effort on the "MyWorldWeather" application instead of on the Google Earth version;
- He suggested changing the name of "Future Version" to "Google Earth version" since the "Future Version" has been launched; and,
- He alerted the Meeting to a problem of dating the forecast and getting the correct global view of forecasts across different time zones.

4.5 The Spanish Version of WWIS (Presented by Mr Francisco Javier Méndez Río, Spain)

4.5.1 Mr Méndez Río made a presentation regarding the Spanish version of WWIS and raised the following points:

- The Spanish version of WWIS has been active since June 2005 and has the potential to serve 420,000,000 Spanish-speaking people in the world;
- In Spain, they use the same database as in HKO with added specific Spanish language tables hence Web updates happen very fast. This is possible because Spain has dedicated resources (hardware) for WWIS. The necessary condition is that they depended on the software developed in Hong Kong, China;
- It was agreed to draw up a basic structure for WWIS Website specifying the technology that would be necessary to host it;

- It was planned that Spain would increase the number of cities to 52 according to the new open data policy in AEMET (the Spanish Meteorological Agency);
- Spain offered to contact Bolivia, Ecuador, Honduras and Nicaragua in regard to sending forecasts to HKO for WWIS;
- It was planned to migrate to a new virtualization platform as part of the system update; and,
- It was reported that AEMET took user suggestions into account. There were 340 messages since 2006. Most of them requested for weather forecasts for South America and for climatological data, forecasts for more cities and for more days.

During discussion, Mr Galati suggested to host the application on the Cloud and to have a common server accessible to all, mainly for testing and pre-production purposes. The WWIS Website Hosts would evaluate such possibility in the future but, at present, they it needed to concentrate on other priorities.

4.5.2 After discussions, the meeting agreed that it was a good practice to use the same Web structure as HKO and so it was recommended that web hosts consider adopting the HKO model as Oman and Spain have done.

4.6 The French Version of WWIS (Presented by Claude Gaillard, France)

Although Mr Gaillard was not physically present at the meeting, he contributed effectively to this event through a document that he had submitted for discussion, as well as a proposed website version of WWIS that he had made. His full contribution was as follows:

4.6.1 Assessment of the French version of the WWIS Website

There are currently between 400 and 1,000 visits per day to the French version of the WWIS Website. This figure is extremely low. The official Météo-France Website (www.meteofrance.com) does not promote the Site. Since the launching of the French version of the Website, the number of visits has continued to decline.

But even the total figures announced by WWIS (11 million page views per month) are quite low compared to the number of visits to the Météo-France Website, which can reach as many as 18 million page views per day at times when the public has a heightened interest in meteorological conditions.

4.6.2 Why the figures are so low

- a) The information is not complete: There is a single forecast per day, which does not appear to be sufficient to satisfy Internet users. The number of cities per country is often quite low. One update every 24 hours is not enough. It is possible that some countries contributing data to WWIS would not agree to provide more detailed information, in particular, the ones which have a Website from which they earn advertising income. At the present time, the majority of Internet sites dedicated to meteorology offer at least 10-day forecasts, three-hourly breakdowns for the first few days, and more frequent updating.
- b) The operations are not regular enough: For example in some cases, some countries do not update forecasts regularly. For some, there could be a break in data provision for a protracted period.
- c) The page layout needs to be modernized and to be made more user-friendly.

- d) The Web referencing can be improved so that if a user enters the word “weather” or “météo” in a search engine, the WWIS Website would show up in the first few pages.

It may be noted that in connection with item (d) above, Mr Galati recommended buying services from an E-marketing company to boost WWIS presence (web referencing) on search engines like Google. The costs are nowadays affordable but the Meeting needs to consider not only Google search engine indexing WWIS but also other commercial and famous search engines for example Bing, Yahoo and Lycos.

Some of the advantages of WWIS Website, from the user’s standpoint, is that there is no advertising and it has multi-lingual options. But if we analyse the Site access statistics, we can deduce (at least for French Internet users) that the vast majority are getting ready to travel abroad. (The peak access periods coincide with regular vacation times, and especially the dates when people normally begin their vacations).

4.6.3 Outlook

- a) It will take more than making the Website more user-friendly to boost the number of Internet users. The content of the Website also needs to be improved (by adding more forecast periods and more cities).
- b) The new version of WWIS requires the downloading of a huge plug-in (Google Earth), which will exclude the vast majority of Internet users. At many organizations and businesses, the use of this version requires the intervention of a systems administrator to authorize the download.
- c) It would be more efficient to choose Google Maps rather than the embedded Google Earth programme. All Internet users make frequent use of this interface to access geographical information.
- d) From the standpoint of the meteorological computer specialist, who would have to install and adapt the new version, it is more economical to have one version of a centralized multi-lingual software programme, rather than a separate version of the program for each language.
- e) In order to get the greatest possible return on expenditures and have a system capable of responding to a large number of requests with a minimum number of servers and minimum bandwidth, the Meeting needs a solution based entirely on Google Maps API V3 Javascript for the terminal, with xml feeds, or even better, JSON on the server side. This solution will allow for the transfer of a large share of the bandwidth use to Google and the central processor time to the terminal. The internationalization of the Website would be done by configuration files containing the translations of various terms. There should perhaps be two versions: one version for languages that are read from left to right and another for those that are read in the other direction.
- f) The conditions for use of version V3 of Google Maps that were recently published lead us to believe that the WWIS Website would meet the criteria for free use. The Website has free access and there is no advertising. If that turns out not to be possible for some reason, a solution based on OpenLayers, which takes up more bandwidth on the server side and requires more time for installation and maintenance, would also be a viable option.

4.6.4 Conclusion

Overall, the prospects for boosting the popularity of the WWIS Website will depend on the enhancement of content and design of the Site. At this stage it would make sense to take a realistic approach to the question of how to continue implementing the WWIS.

The Meeting discussed a mockup version of WWIS based on Google Maps suggested by Mr Gaillard. The following points were made:

- It was noted that the suggestion was a good idea as it included such features as an easy way to navigate between countries;
- It was further noted that the Meeting could not influence the language in which the names of the cities were written. However, one could influence the information on the pop-up box; and,
- A drawback was noted in that one could immediately see the forecast on the map until one clicked on the map. HKO was requested to check whether there was a solution to this.

5. TECHNICAL ISSUES OF WWIS

To construct the unified database, it was agreed that the HKO database be enhanced to contain the city, country names and forecast descriptions in all languages. In the future, when new cities are added, all hosts would send the translation of corresponding fields for update on the unified database.

It was also agreed to include fields like: (i) Icons and links and names of NMHSs; (ii) WMO Regions; and, (iii) table for dependent territories, in the unified database. HKO will draft the schema of the unified database for comments by other language hosts. It was agreed that HKO provides a list of recommended software necessary for building the WWIS to other language hosts.

6. WMO TECHNOLOGY (Presented by Mr Federico Galati, WMO)

6.1 Mr Galati gave an overview of the WMO Website environment and presented:

- a) The current and future structure of the WMO Website hosting including the Web Content Management System (CMS) selection (virtual vs. physical);
- b) WMO Cloud services orientation, including the:
 - o extensive use of Google and introduction of cloud approach services and tools in WMO; and,
 - o choice made by WMO to use Google technology (WMO Mail, webmaster tools, sites for Intranet use, etc.);
- c) The use of social networks in WMO and an associated case-study: He pointed out that a policy for staff was under development to facilitate the conveyance of messages correctly on FaceBook and Twitter essentially. More importantly, it would provide WMO with more control and governance over the expanding use of social networks;
- d) The 'Waterfall' model approach in delivering Web projects. It was observed that the model possessed the following attributes: Evaluate - Define - Design - Build - Integrate - Test - Maintain + Test - Pilot - Feedback and Release;

- e) Examples of WMO Websites portfolio and projects such as the Google Weather OneBox Project were shown in order to demonstrate what could be adopted for the WWIS Website;
- f) Web governance (Web standards, Web policy): How to reinforce the organizational Web presence. How to build a Web strategy around a Web project; and,
- g) E-accessibility: He pointed out that accessibility needs to be taken into consideration when building or developing any website (Disabilities: 800 million worldwide disabled users, respect for diversity). There are also the W3C standards to respect in that context.

6.2 Subsequent to discussions from the presentation, the following recommendations were agreed upon for improving the WWIS Website:

- a) To use WMO social networks channels to disseminate useful information about WWIS implementation, including own social individual channels. It may be noted that Mr Zhao (China) mentioned that Facebook was not operational in their country and would see how to disseminate information using other similar tools;
- b) To improve the WWIS Website and application on mobile platform in terms of ergonomics. In this regard, Mr Galati would provide HKO with a set of recommendations for consideration by the Meeting;
- c) To adopt Google Maps (or a similar open source platform) as opposed to the Google Earth because of ease of use, and there is no need to install plugin for users;
- d) To introduce more Web governance in order to ensure compliance with standards, content quality and smooth work flow and processes;
- e) To benchmark more regularly the potential and impact of all the WWIS language websites through 'Monitoring and Evaluating Projects and Analyzing Results';
- f) To recommend techniques to improve WWIS Website referencing;
- g) To try to attract and implement, as much as possible, new language versions in order to cover more worldwide users;
- h) To provide a search functionality similar to that on the Google Earth version;
- i) To ease, streamline and automate as much as possible the information Workflow of WWIS;
- j) To regularly, or on a periodic bases, monitor the performance of WWIS. WMO, for example, is adopting standards and approaches for Monitoring & Evaluation (M&E) of projects;
- k) To introduce accessibility guidelines to the WWIS Website portal, according to <http://www.w3.org/TR/WCAG10/> and through UN Enable recommendations <http://www.un.org/disabilities/>; and,
- l) Having a more prominent linkage between WWIS and SWIC.

It was agreed that implementing these recommendations would benefit WWIS in broadening the reach of audience thus increasing traffic to site; improving usability; and minimizing maintenance efforts.

7. TECHNICAL ISSUES (Presented by Mr Armstrong Cheng, HKO)

7.1 WWIS database

The Meeting discussed adopting a database with the same structure for all language hosts. It was agreed that this approach shall have the benefits of easier administration and less maintenance efforts. Thus, it was decided to develop a unified database based on the master table currently hosted at HKO, with language tables provided by the language hosts.

To construct the unified database, it was agreed that the Hong Kong, China database be enhanced to contain the city, country, member names and forecast descriptions in all languages. When new cities are added in future, all hosts would send the translation of corresponding fields for update on the unified database.

It was also decided to include fields like: (i) Icons and links and names of NMHSs; (ii) WMO Regions; and, (iii) tables for dependent territories, in the unified database. HKO will draft the schema of the unified database for comments by other language hosts. It was also agreed that HKO provides a list of recommended software necessary for building the WWIS to other language hosts.

7.2 Operational Issues

It was agreed that language hosts would download weather forecasts twice per hour. Hong Kong, China will communicate with each host and agree on the time to migrate to the new unified database structure.

7.3 Future enhancement of the WWIS – Mode of Cooperation

7.3.1 In view of the Commission for Basic Systems (CBS-Ext.(10), Windhoek, Namibia, 17-24 November, 2010) recommendation that all hosts be ready before the launch of the newly redesigned WWIS Website, the Meeting observed that this would be easier to implement once the unified database system was instituted.

7.3.2 The Meeting decided to develop a revamped version of WWIS. HKO would develop a prototype version for comments by other language hosts. Ideas on what to be considered for the revamped version included the following:

- Navigation on WWIS as it is currently, was noted to be inconvenient for the user, meaning that it needed to be redesigned;
- The language hosts, if they adopted the proposed architecture, they would mainly be involved in the part of translation to the respective languages;
- It was decided to employ the GIS technology like Google maps (or equivalent) to create the Prototype with marked cities for the forecasts as proposed by Mr Gaillard;
- To display the forecast, including the icons, on the cities when the marked city is clicked on;
- A basic version without Google maps but with an option of GIS was found to be possible. This is because the use of Google maps comes with conditions that some

hosts might have problems to accept e.g., Google may choose to put advertisements, or the service can be interrupted without reference to the user, etc.;

- It was agreed to add a “Search” function on the front page as well as on the left side bar (right hand bar for Arabic version) of the classic version of WWIS;
- It was decided to introduce the breadcrumb navigation for increased usability;
- To move the legal notes out of the navigation and have it as a footer;
- Links to different languages to be shifted to the top of the page and to put them in text format as opposed to the current image format;
- To change “future version” to “Google Earth version”;
- To reduce the size of the WMO logo and shift the language host logo to the top;
- To check whether it would be possible for WMO graphics designer to help us with weather icons – Mr Galati was requested to follow up on this;
- To include a prominent link from WWIS to SWIC indicating that it is for “warnings”;
- To add graphics as an alternative way of presentation for the climatological table; and,
- To include the following words on the main page of WWIS: “All the information of this Website is from National Weather Centres of WMO Member countries. We encourage personal, social (profit and non-profit) organizations and media to use this information” so long as they quote the source of the information as WWIS.

During the discussions, Mr Galati suggested avoiding page frame navigation approach and to improve aesthetic and taxonomy in the way information is presented, organized and communicated on-line on WWIS.

8. USE OF SOCIAL NETWORKS

8.1 Using Social Networks to Improve Web Referencing

The Meeting considered and decided not to add a social media link on WWIS for the purpose of improving web referencing for WWIS. It was observed that as weather forecasts are dynamic as opposed to static, the content shared to social media may have been updated when it was read and thus may not be useful to users. However, it was agreed that if there was something new on WWIS or if there were WWIS related newsworthy events, the WMO social networking Website and the social network links of the WMO members should be used to promote it.

8.2 Online Discussion Forum

Mr Galati (WMO) was requested to create a Google Group for WWIS hosts to serve as an online discussion forum.

9. WMO LEGAL ISSUES (Presented by Mr Galati, WMO)

- The question of privacy of data was presented as an important legal concern for WMO. On the one hand, data confidentiality on specific platforms (e.g., Facebook, LinkedIn, Google + etc.) was also highlighted as an important factor for WMO. On the other hand, introducing social media would increase WMO popularity, Google ranking and visibility;

- The question of who owns the information (the user vs. the platform): as can be expected with any revolutionary change, in the landscape of global computing, everything from trademark infringement, security concerns, to the sharing of data resources, are common issues. Some platforms state that data posted or available on their site belongs to them. WMO is cautious, therefore, in selecting any external commercial platform. The WMO Legal Office was consulted for advice. For example, Google maintains a strong privacy policy to help protect customer data. To put it simply, Google does not own customer data, adheres to the following principles regarding customer data: Google will not share data with others except as noted in the Google Privacy Policy. Google provides capabilities for customers to take data with them if they choose to use external services;
- Protecting branding through various entry points: The domain name system or Domain Name Server (DNS): Conventions are established in WMO to clear domain names before purchasing them, so far extensions like .org, .net or .info have been the ones adopted for WMO sites; and,
- The “.un” extension: For more corporate approach and legal protection, purchasing additional domain names such as “.un” (which is expected to be available soon) for WWIS was considered. Reserving more domain names for WWIS was also considered, if needed, on a step by step basis and depending on availability. Mr Galati would check what is possible in that respect.

10. “MYWORLDWEATHER” APPLICATION IMPROVEMENT PRIORITIES

The Meeting agreed on the following order of priorities in the implementation of “MyWorldWeather” application to:

- **Priority 1:** provide the service in additional languages;
- **Priority 2:** develop an Android version for MyWorldWeather; and,
- **Priority 3:** provide a mobile layout for the WWIS Website and to enhance weather information on “MyWorldWeather” application such as providing weather warnings from MeteoAlarm and SWidget.

11. CLOSURE

During the closing session, participants thanked the Deutscher Wetterdienst (DWD) for hosting the very successful meeting and for the arrangements they had made, and which made all feel at home. The Meeting participants pledged to act on all the points that were agreed upon and to continue to consult each other as necessary in the interest of keeping the WWIS Website growing from strength to strength.

**PARTICIPANTS AT THE “THIRD COORDINATION MEETING OF THE
WORLD WEATHER INFORMATION SERVICE (WWIS) WEBSITE HOSTS”
(OFFENBACH, GERMANY, 18-20 OCTOBER 2011)**

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**PROGRAMME OF THE THIRD COORDINATION MEETING OF THE
WORLD WEATHERINFORMATION SERVICE (WWIS) WEB SITE HOSTS
(OFFENBACH, GERMANY 18 – 20 OCTOBER 2011)**

PROVISIONAL PROGRAMME / ORDER OF BUSINESS

Tuesday, 18 October 2011 (0845-1700)

		DAY 1		
0845-0900	Registration			15 minutes
0900-0940	Opening Addresses: <ul style="list-style-type: none"> • DWD • HKO • WMO 	<ul style="list-style-type: none"> • Representative of DWD • WWIS / SWIC Coordinator • WMO Representative 	40 minutes	
0940-0945	<ul style="list-style-type: none"> • Elect Chair of the meeting • Adoption of the agenda 	<ul style="list-style-type: none"> • S. Muchemi (WMO Representative) 	5 minutes	
SESSION 1: REVIEW OF THE STATUS OF WWIS				
0945-0955	Review of outcomes relevant to WWIS of CBS Extraordinary Session (CBS-Ext.(10) Windhoek, Namibia, 2010) and Sixteenth Session of the World Meteorological Congress (WMO-Cg-XVI, Geneva, Switzerland, June-July 2011)	<ul style="list-style-type: none"> • S. Muchemi 	10 minutes	
0955-1025	GROUP PHOTO; COFFEE / TEA BREAK			30 minutes
1025-1100	Review of current status of WWIS since the Second WWIS meeting (Toulouse, France, 2009). (Background Information, page visits, challenges, highlights of developments, etc.)	<ul style="list-style-type: none"> • Presentation by A. Cheng (HKO) followed by discussion (all Participants) 	35 minutes	
1100-1130	Working towards increasing the number of participating Members and the number of cities for which information is provided on WWIS	<ul style="list-style-type: none"> • Discussion (all Participants) 	30 minutes	
1130-1230	Experience Sharing: presentations by WWIS Website Hosts	<ul style="list-style-type: none"> • H.H. A. Al Maqbali (Oman) • ZHAO Rui (China) 	60 minutes	

1230-1400	LUNCH BREAK		90 minutes
1400-1530	Experience Sharing: presentations by WWIS website hosts (continued)	<ul style="list-style-type: none"> • C. Gaillard (France) • R. Mohr (DWD, Germany) • Lt. Col. G. Leonforte (Italy) 	90 minutes
1530-1600	COFFEE / TEA BREAK		30 minutes
1600-1700	Experience Sharing: presentations by WWIS website hosts (continued)	<ul style="list-style-type: none"> • R. Deus (Portugal) • F.J. Méndez Río (Spain) 	60 minutes
1700	END OF DAY 1		

Wednesday, 19 October 2011 (0900-1700)

0900-0940	Overview of WMO Web technology	<ul style="list-style-type: none"> • F. Galati (WMO) 	30 minutes
0940-1000	Demonstration of, and Discussions on the new WWIS applications: <ul style="list-style-type: none"> • Google Earth WWIS Version 	<ul style="list-style-type: none"> • A. Cheng 	20 minutes
1000-1030	COFFEE / TEA BREAK		30 minutes
1030-1130	Demonstration of, and Discussions on the new WWIS applications (continued): <ul style="list-style-type: none"> • SWidget • SWIC Gale • "MyWeather" iPhone WWIS version 	<ul style="list-style-type: none"> • A. Cheng 	60 minutes
1130-1200	Technical issues of WWIS	<ul style="list-style-type: none"> • A. Cheng 	30 minutes
1200-1230	IT-related legal approach	<ul style="list-style-type: none"> • F. Galati 	30 minutes
1230-1400	LUNCH BREAK		90 minutes

SESSION 2: COORDINATION AND PROCEDURES			
1400-1410	Discussion of CBS Ext.10 Session and Cg-XVI Session recommendations, and agreeing on the way forward	<ul style="list-style-type: none"> • Discussion (all Participants) 	10 minutes
1410-1420	WWIS Forum Discussion page	<ul style="list-style-type: none"> • H.H. A. Al Maqbali 	10 minutes
1420-1515	Web hosts language coordination issues, common framework and translation	<ul style="list-style-type: none"> • Discussion (all Participants) 	55 minutes
1515-1530	COFFEE / TEA BREAK		15 minutes
1530-1700	Visit to Met Service of Germany	<ul style="list-style-type: none"> • A. Thomalla (DWD) 	90 minutes
END OF DAY 2			
1800	Social Event		

Thursday, 20 October 2011 (0900-1700)

SESSION 3 – THE FUTURE OF WWIS			
0900-1000	Future products and applications for WWIS and SWIC	<ul style="list-style-type: none"> • Discussion (all Participants) 	60 minutes
1000-1030	COFFEE/TEA BREAK		30 minutes
1030-1100	Further enhancements to improve accessibility and visibility of WWIS (cross-linking with other websites, connection with travel websites, publicity, etc.)	<ul style="list-style-type: none"> • Discussion (all Participants) 	30 minutes
1100-1130	Further enhancements to improve ergonomics (<i>user friendly design</i>) and attractiveness of the Website, including technology	<ul style="list-style-type: none"> • Presentation by F. Galati and discussion (all Participants) 	30 minutes
1130-1200	Common Alert Protocol (CAP) and SWIC	<ul style="list-style-type: none"> • A. Cheng 	30 minutes
1200-1230	Promotion of WWIS applications through social networks	<ul style="list-style-type: none"> • ZHAO Rui 	30 minutes
1230-1400	LUNCH BREAK		90 minutes
CLOSING SESSION			

1430-1515	Consideration of the draft report of the meeting	<ul style="list-style-type: none"> • S. Muchemi 	45 minutes
1515-1530	COFFEE / TEA BREAK		30 minutes
1530-1600	Any Other Business (AOB)	<ul style="list-style-type: none"> • Discussion (all Participants) 	30 minutes
1600-1630	Closure of the Meeting	<ul style="list-style-type: none"> • DWD • HKO • WMO 	30 minutes