UNIÓN DE RADIOAFICIONADOS ESPAÑOLES
SPANISH AMATEUR RADIO UNION

COMUNICACIONES DE EMERGENCIA
EMERGENCY COMMUNICATIONS

U.R.E. REPORT ON THE GLOBALSET NOV 2009 EXERCISE

Report presented to the
IARU Working Group on Emergency Communications

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1. Introduction.

This is a report detailing the results of the deployment performed by several Amateur Radio stations in Spain in order to participate in the Global Simulated Emergency Test (GlobalSET) exercise, arranged by the International Amateur Radio Union (IARU) on the past November 14th, 2009, between 18:00 and 22:00 hours UTC.

The IARU is the international organisation made up by the most important Amateur Radio associations in each country, and is a representative member in the International Telecommunications Union (ITU), the United Nations organisation for the development and regulation of the telecommunications sector.

2. Objectives.

The GlobalSET exercices are arranged at least twice a year by the IARU Working Group on Emergency Cmmunications, and are open to any group related to emergency communications within the Amateur Radio Service.

The objectives of the tests are:

- Increase the common interest in emergency communications.
- Test how usable the emergency CoA frequencies (also known as the Tampere Frequencies) are across ITU regions.
- Create practices for international emergency communication.

- Practice the relaying of messages using all modes, following the IARU HF Emergency Communications procedure.

3. Stations deployed in Spain.

The following spanish Amateur Radio Stations were deployed to participarte in the exercise (table 1). Some of them were collective stations with several operators taking part in the operations.

Callsign	Group	QTH
EA4SPC/p	REMER	Madrid (M)
EA5RCI/p	Radio Club Elda (URE)	Alicante (A)
EA7HFG	Individual (URE)	Córdoba (CO)
EA2ICA	ICA	Zaragoza (Z)
EA3RKR	ARMIC	Barcelona (B)
EB1FGO	ERA Spain	Castro Urdiales (S)
EA5GVP	ERA Spain	Gandía (V)
EB2FAC	ERA Spain	Graus (HU)
EA7AE	ERA Spain	Barcelona (B)
EA1ZY	ERA Spain	Valladolid (VA)
EA1QV	ERA Spain	Valladolid (VA)
EA2CPG	ERA Spain	Torrelavega (S)
EB8CLY	ERA Spain	Sta. Cruz de Tenerife (TF)
EA9UV	ARADEX	Ceuta (CE)
EA9UE	ARADEX	Ceuta (CE)
EA9AK	ARADEX	Ceuta (CE)
EA9AAN	ARADEX	Ceuta (CE)
EA9PE	ARADEX	Ceuta (CE)
EA9AI	ARADEX	Ceuta (CE)
EA3BCH	ACPC	Lleida (L)
EC3DEL	ACPC	Lleida (L)
EA3ZQ	ACPC	Lleida (L)
EA3URS	FEDI-EA	Sabadell (B)
EA3RKB/p	FEDI-EA	Olost (B)
ED7YAA	FEDI-EA	Camas (SE)
ED1ZAC	FEDI-EA	Cariño (C)
EA8AHH/p	Individual	Sta. Cruz de Tenerife (TF)

Table 1. Spanish stations deployed during GlobalSET Nov 2009

A brief description of each involved group follows:

- **REMER** (Red Radio de Emergencia) is the Emergency Radio Network of the Spanish General Directorate of Civil Protection and Emergencies, Ministry of Interior. It is set up by about 4.000 amateur radio operators. Some of the operators of this station, deployed in the Spanish Civil Protection National School near Madrid, were members of URE.

  http://www.proteccioncivil.org/

- **URE** (Unión de Radioaficionados Españoles, *Spanish Amateur Radio Union*) is the biggest amateur radio association in Spain and also a member of IARU. The association was represented by the Elda Amateur Radio Club, in the southeast coast of Spain, and by some individual stations such as EA7HFG from Córdoba.

  http://www.ure.es/

- **FEDI-EA** (Federación Digital EA) is a federation of several amateur radio associations in Spain. The federation was represented by several associations: Unión de Radioaficionados de Sabadell, Radio Club Barcelona, Andalucía Unida por la Radio and Comunicaciones Digitales de Galicia.

  http://www.fediea.org/

- **ICA** (Instituto Corona de Aragón) is the amateur radio association of the Corona de Aragón Institute, located at the city of Zaragoza.

- **ARMIC** (Asociación de Radioaficionados Invidentes de Cataluña) is the Association of Blind Ham Radio Operators of Cataluña, in the north east of Spain. It is associated with URE, IRESC and ARIES.

http://www.gratisweb.com/ea3rkr/

- **ERA Spain** (Asociación Europa Radio Emergencias España) is an association part of the European Radioamateurs Association.

http://eraspain.org/

- **ARADEX** (Asociación Radioaficionados Desarrollo y Experimentación) is an association of amateur radio developers and experimenters, located in Ceuta, North Africa.

http://aradex.info/

- **ACPC** (Asociación de Colaboradores de Protección Civil de Lleida y Provincia) is an association of Civil Protection Collaborators operating in the northeast of Spain.

http://www.proteccio-civil.net/

4. Exercise preparations.

Information about the exercise was spread in Spain after its publication on the IARU Region 1 website. A list of participating stations has been built and submitted to the IARU-R1 EMCOM Co-Ordinator.

The following material has been spread among the participants:

- Translation into Spanish of the GlobalSET rules.
- Translation into Spanish of the IARU HF Emergency Communications procedure.
- A new GlobalSET Basic Operations Guide, in Spanish.
- Documents related to the exercise from IARU: log spreadsheet, log examples and radiograms.

5. Report of operations.

All the participating stations have been reminded by email to submit their logs, pictures and comments about the exercise to the IARU-R1 EMCOM Co-Ordinator.

Some of those stations also have sent reports to the URE EMCOM Co-Ordinator. The following report takes into account all the received information.

- EA5RCI, the station from the Radio Club Elda, was deployed with 4 operators (EA5SS, EA5DT, EA5SJ and EACJA) and several observers (EA5DJ, EA5CWZ, EA5GOR and EA5HDH, among others), in an old Red Cross field post near Elda, southeast of Spain. They used a homebrew Windom 80m/10m antenna and operated at 100 Watts (fig.1).

Fig.1. EA5RCI operating from an old Red Cross field post in Elda (Alicante)

- EA4SPC was deployed with 4 operators (EA4AAE, EB4DRN, EB2EZN and EA4FSI) in the training field of the Spanish Civil Protection National School, near Madrid, using two portable HF stations with field antennas, operating at 100 Watts (fig.2).

Fig.2. EA4SPC operated by REMER from the Civil Protection National School

- EA2ICA was deployed with 2 operators (EA2FJE and EA2BRH) in a hill near the city of Zaragoza, using a communications van equipped with 7 radios and its corresponding antennas to operate in the HF, VHF and UHF bands.

- EA7HFG used his QTH station in the city of Córdoba for HF operations (fig.3). He experienced heavy QRM in 40m and 80m.

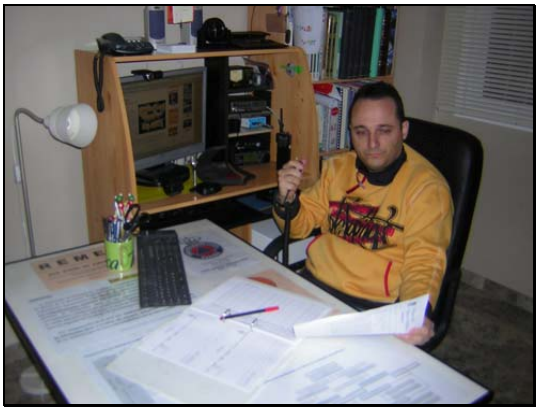

Fig.3. EA7HFG (URE) operating from Córdoba

- The ACPC team (EA3BCH, EC3DEL and EA3ZQ) operated from the Arán Valley in the center part of the Pyrenees Mountains. They experienced difficulties due to the fact of the very elevated terrain around them and the use of vertical antennas.

- The ARADEX team (EA9UV, EA9UE, EA9AK, EA9AAN, EA9PE and EA9AI) was deployed in the landscape and used QRP transceivers.

Most of the stations tried to operate in the 20m, 40m and 80m bands. The 20m band seemed to be closed for most stations. 40m was usable during the first two hours and 80m during the last two hours. Not all the stations,

especially those deployed as portable, had efficient radiating systems to operate in the 80m band, which was an added problem.

The stations located in the southernmost part of Spain experienced more difficulties to establish contacts due to the loss of conditions towards Europe as the exercise was advancing.

The most severe problem reported was the QRM from other amateur radio stations participating in several events near the CoA frequencies. In the figure 4 it is shown the calendar of activities scheduled for November 14th, as collected in the URE website (Spanish time).

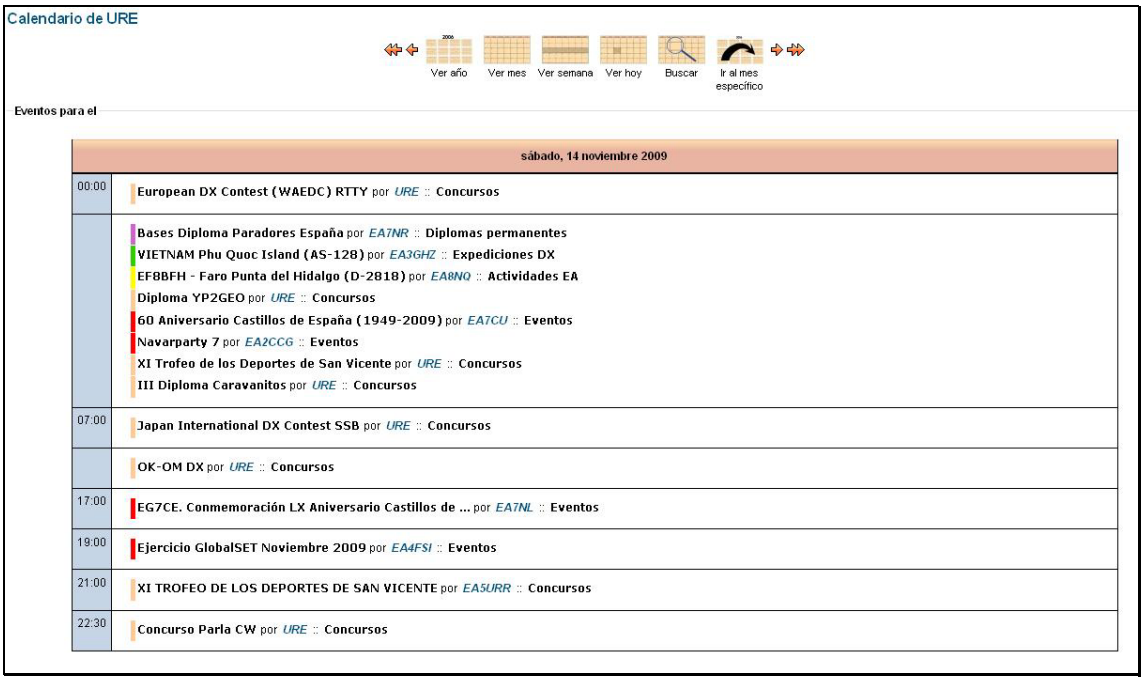

Fig 4. Calendar of other events scheduled for the day of the exercise

A brief report on the use of each of the Tampere frequencies (±QRM) during the exercise, including propagation simulations calculated with the W6ELProp software for 20:00 hours UTC:

- **80 meters:** as shown in the figure 5, the band was only open to the Arctic and to the nearest countries from Spain.

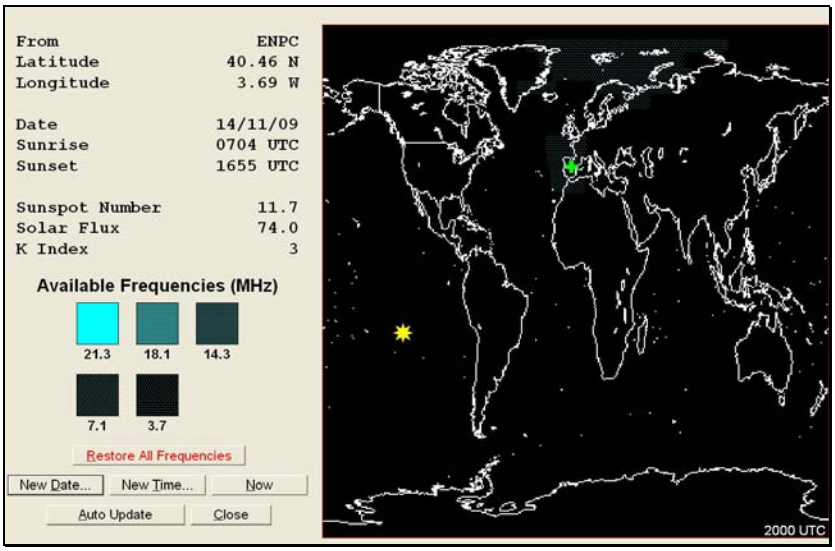

Fig 5. Propagation from Spain in the 80m band

- **3.760 kHz:** usable during most part of the exercise, but with very low signals from other stations. There were some chats among other amateur radio stations which seemed not to know about the exercise, during certain periods of time. Andorra seemed to make a very good use of this frequency with several contacts.

- **40 meters:** as shown in the figure 6, it was the main band to try contacts with other european stations and also with Regions 2 & 3.

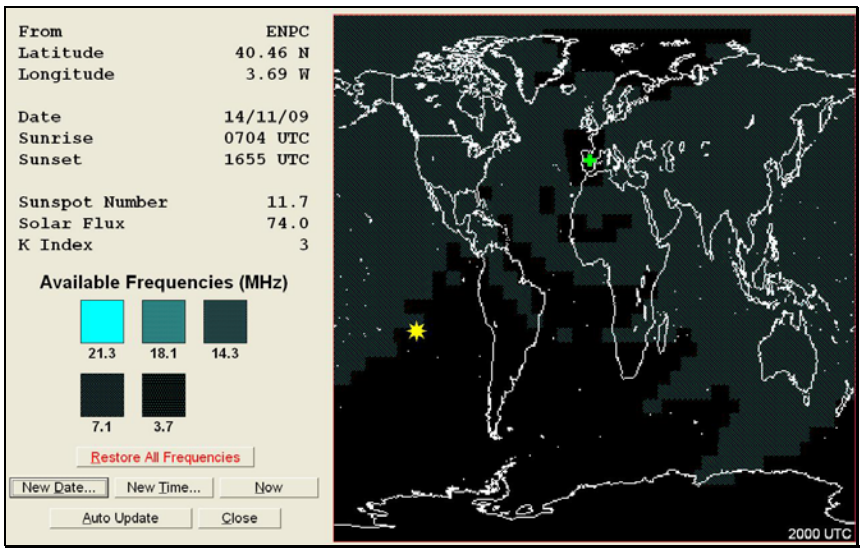

Fig 6. Propagation from Spain in the 40m band

- **7.060 kHz:** the most severe QRM just below this frequency came from digital stations participating in the "European DX Contest (WAEDC) RTTY", making this CoA frequency unusable during the most part of the exercise. No PSK GlobalSET traffic detected around this frequency, most probably due to the heavy traffic of the contest. Going above 7.060, there were a lot of other stations participating in the "Japan International DX Contest SSB". Only during certain periods of time any european GlobalSET station was contacted with strong signals in a particular frequency, thus making possible to forward some messages.

- **7.110 kHz:** unusable during almost all the exercise due to QRM from a broadcast station transmitting in AM around 7.106 kHz. There are reports of another broadcast station around 7.200 kHz.

➢ **20 meters:** as shown in the figure 7, the band was only open to the Southern Hemisphere, with poor probabilities of contact for portable

stations. Only reports of some stations stating that there were no audible traffic on 14.300 kHz.

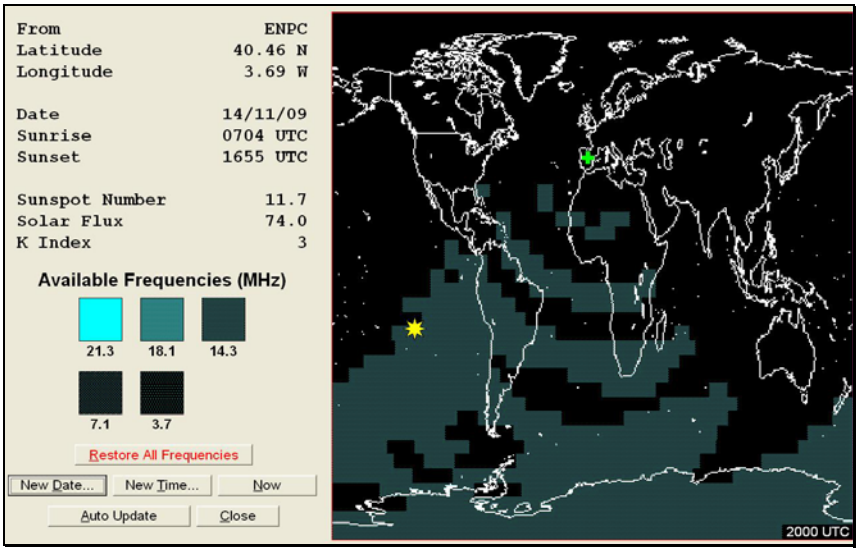

Fig 7. Propagation from Spain in the 20m band

- **17 meters:** as shown in the figure 8, the band was almost closed, except for some remote areas of Africa, South America and the Antarctic. No reports about 18.160 kHz although some stations tried digital modes.

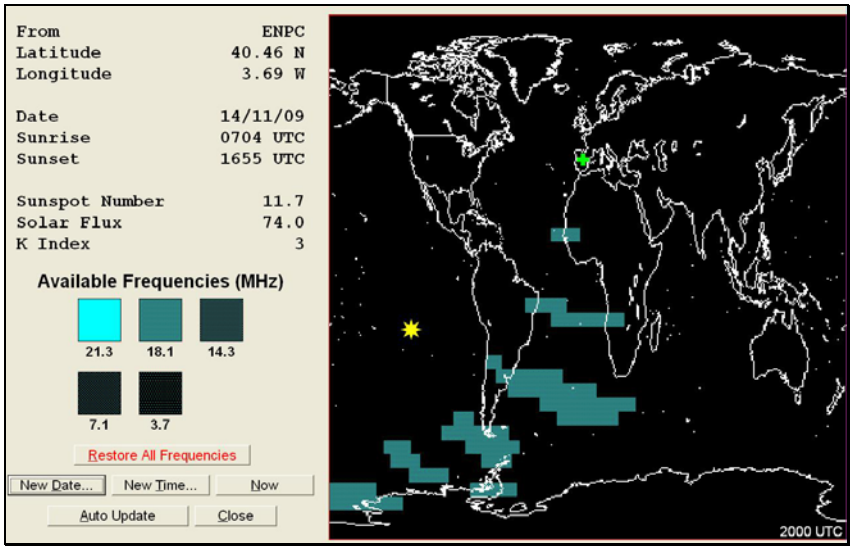

Fig 8. Propagation from Spain in the 17m band

- **15 meters:** as shown in the figure 9, the band was completely closed. No reports about 21.360 kHz.

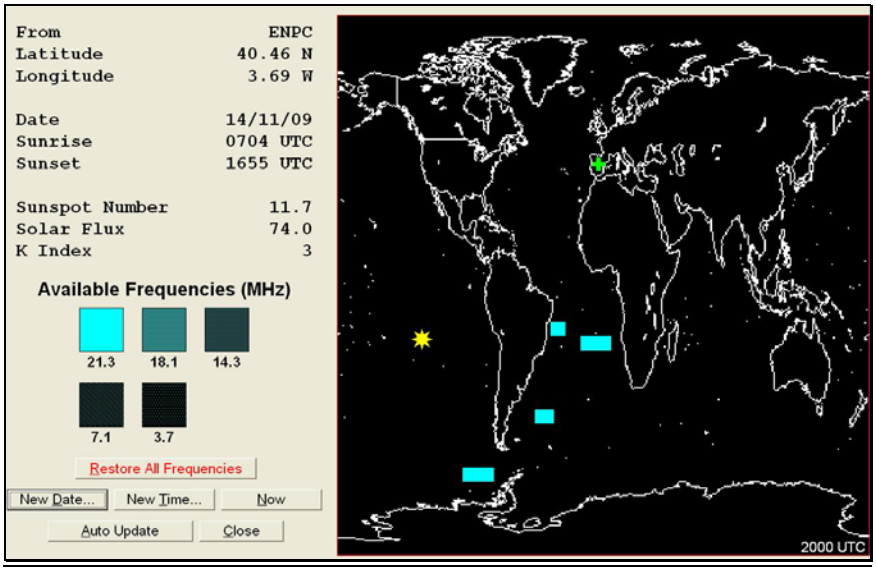

Fig 9. Propagation from Spain in the 15m band

Other reported problems:

- The exercise was unknown to a lot of other stations, which even asked in some cases whether it was a new contest.

- Some operators may find difficult to communicate in English.

6. Conclusions and suggestions.

The analysis of all received reports leads to the following **conclusions**:

- GlobalSET is an excellent oportunity to train amateur radio operators on emergency communications and to test the deployment of portable emergency stations.

- Some of the Tampere frequencies seem to be unusable due to QRM from other amateur radio stations which are not aware of the exercise, especially those participating in contests and other activities.

- There is still QRM from AM commercial broadcast stations in the 7.100 – 7.200 kHz segment.

- Digital communications should be dificult to establish unless there are pre-arranged frequencies to work in.

- It seems that GlobalSET is still an unknown event for a great part of the amateur radio community. This fact does not help in the efforts to keep the Tampere frequencies free of traffic.

- Some stations claim that there is no way of knowing whether the messages they have sent have reached their final destination or not.

- Some stations still have doubts about some of the rules of the exercise, i.e. whether the same message can be sent several times or not, or if one can deliver their messages to the HQ station of other Regions.

Taking into account all references, the following **suggestions** are raised:

- It is necessary to increase the awareness among all the amateur radio community about the existence and importance of the Tampere frequencies. It should be interesting for each association member of IARU to offer as much information as possible about this issue using all the available channels: magazines, forums, conferences, etc. IARU could create a leaflet in pdf format with information about the Tampere frequencies to be distributed through those same channels.

- The same way, it is necessary to invite all amateur radio associations to avoid the use of the Tampere frequencies for contests and other non-emergency activities, at least during the GlobalSET exercices.

- There are still some AM commercial broadcast stations causing QRM in the new 7.100 – 7.200 segment. All afected countries should report that to the IARU Monitoring Service.

- Following the model started by other countries, it should be of interest to arrange similar exercices at national level, so all operators could be trained in the procedures in an easier way, using their own mother tongue, and thus making more fluent the traffic during the GlobalSET exercices.

- It is necessary to make a call to more amateur radio stations to participate in the GlobalSET exercices. This will increase the awareness and help to solve some of the known problems.

- It should be interesting to develop a kind of basic operations guide in several languages, which would aid the operators to work in the exercise.

This guide could be also the seed for a future IARU manual on emergency communications within the Amateur Radio Service.

Madrid, 9th December, 2009.

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