

Brief communication

“A pre seismic radio anomaly revealed in the area where the Abruzzo earthquake ($M=6.3$) occurred on 6 April 2009”

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Received: 27 January 2010 – Accepted: 28 January 2010 – Published: 9 February 2010

Abstract. We report the information that in the days of the radio anomaly presented in the paper Biagi et al. (2009) an interruption of the broadcasting from the transmitter (RMC, France) happened. It remains unclear if the action resulted in a complete power off of the system, or in a reduction in the radiated power, and if this has affected France only, or every direction. Should a complete power off have occurred, the proposed pre-seismic defocusing is inexistent. Our doubts on this action are reported.

1 Facts and comment

In a recent paper in this journal (Biagi et al., 2009), we reported an anomaly in the intensity of the Radio Monte Carlo (RMC, $f=216$ kHz, Roumoules, France, referred to as MCO in the paper) signal in the period from 31 March to 1 April 2009. The anomaly was revealed by a receiver in operation at the Amare cave, that is located in the area affected by the recent L'Aquila (central Italy) earthquake ($M=6.3$). In the paper, we excluded the possibility that the anomaly was related to the transmitting station, because in the considered period the receivers in Bari (southern Italy) and in Bucharest (Romania) received normally the same signal (Fig. 6 in Biagi et al., 2009). We attributed the anomaly (drop) in the radio

signal to a defocusing of the signal radiated by the RMC station and we proposed that this was evidence for a precursor of the L'Aquila earthquake.

Recently, we became aware of new information. Specifically, the DX Listening Digest 9-031 of 8 April 2009 (available at <http://www.w4uvh.net/dxld9031.txt>) reports that “...RMC on 216 kHz from Roumoules, France, ... was off the air on 31 March and 1 April. ... on Wednesday morning at 03:00 UT RMC [was] back on the air”. A manager said, “...it was a “test” from RMC to know if there are still people who listen to 216 kHz. ... As they received complaints, the frequency is still in use. If no complaints were received the transmitter was off for good...”. In addition, the Italian blog on radio information “radiolawendel.blogspot.com” reports that “France may have arranged the power-off of the long-waves transmitter in Roumoules that RMC uses for covering the entire French territory...” (<http://radiolawendel.blogspot.com/2009/04/francia-rmc-il-tribunale-spegne-i-216.html>, original text in Italian). To a written request of one of our colleague, the Radio Monte Carlo Office replied that in the two-days period between 31 March and 1 April 2009, the RMC transmitter in Roumoules was under maintenance.

In any case it remains unclear if the action resulted in a complete power off of the system, or in a reduction in the radiated power, and if this has affected France only, or every direction.



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A complete power off of the system or a reduction affecting every direction is in contrast with our recording of the same RMC signal in Bari and in Bucharest (Fig. 6 in Biagi et al., 2009). So, we have tried to reconstruct the facts of that period. The radio network was under construction just in that period. In particular, the receiver in the Amare cave (L’Aquila area) was installed on 27 March, without any remote connection. However, the receivers in Bari and Bucharest were switched-on and operational in the period between 20 and 25 March, and were online with the Department of Physics of the University of Bari (headquarter of the network). In order to define the best reception, different signals (different frequencies) for these two receivers were tested in the successive days. So, we cannot exclude that from 28 March to 3 April (Fig. 6 in Biagi et al., 2009) instead of the signal transmitted from the RMC station ($f=216$ kHz) in Roumoules, some signal transmitted from other stations was recorded by the two receivers in Bari and Bucharest. Should this have occurred, the temporal trends for these two recording stations shown in Fig. 6 of Biagi et al. (2009) are spurious, and the proposed pre-seismic defocusing is inexistent.

However, in our opinion the previous occurrence is unlikely, because we consider that: (a) we have sampled in central Italy the RMC signal constantly from 1994, and the broadcasting in the direction of Italy has never been interrupted, (b) the receiver in the Amare cave, where the anomaly in the radio signal was observed, is close (15 km) to the epicentre of the 6 April 2009 L’Aquila earthquake, and in the zone most sensitive to possible radio signal disturbances (Biagi et al., 2009; Molchanov and Hayakawa, 1998), (c) the anomaly appeared exactly at the same time when different pre-seismic effects (Genzano et al., 2009; Papadopoulos et al., 2010; Papanikolaou et al., 2010; Pergola et al., 2010; Tsolis and Xenos, 2010), including decreases of the intensity of other radio signals (Rozhnoi et al., 2009), were observed in the area.

2 Conclusions

Our opinion is that every action performed from 31 March to 1 April 2009 on the RMC transmitter in Roumoules affected only the signal radiated in the direction of France (the area that this signal must cover) and not the signal propagating in other zones, i.e. central Italy, southern Italy and Romania. So, the pre-seismic defocusing presented in Biagi et al. (2009) remains possible.

In any case, the fact that the previous action happened exactly at that two days, really seems absurd.

Edited by: M. E. Contadakis

Reviewed by: M. E. Contadakis and another anonymous referee

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