

## **OPERA Radar FAQ – updated 13 January 2017**

### **Why do I see stripes / spikes / sectors ?**

Spikes pointing to a radar are usually caused by another device transmitting microwaves on weather radar frequency. OPERA members are constantly working both to develop mechanisms to clean the images, and to protect the frequencies dedicated for weather radar use.

### **What timezone is the timestamp of OPERA image ?**

The OPERA data files have timestamp of the measurement time in UTC, the timezone of 0 meridian. This is the standard practice for all professional meteorological products.

### **Why is there such a large delay in the OPERA composite ?**

The frequency of radar data production depends on the country, and the bandwidth of the data link from a given country to the compositing center can be limited. So to have as full a picture as possible, we wait several minutes after the time stamp to ensure that the maximum amount of radar data is available at the compositing center.

### **Why were radars from xx country missing yesterday ?**

Typically when one country missing, the problem is at originating country rather than Odyssey. Interruptions which come and go are more often related to data transmission than the radars.

### **Are there any radars in Portugal ? What kind of radars do they have in Ireland ?**

Details and locations of radars in OPERA are documented in **OPERA radar database**, linked to <http://eumetnet.eu/activities/observations-programme/current-activities/opera/Atmosphere>

### **Why does it seem to rain at the sea ? I am at the coast and I see the sky is clear.**

In certain temperature conditions microwaves of the radar bend towards sea surface, and reflect from the sea waves. OPERA project is working to develop better mechanisms to clean the images.

### **It is raining here and your radars can't see it.**

Because the spherical shape of the Earth and the conical shape of radar beam, at longer distances from the radar the measurement is made higher in the atmosphere and has less details. Also, the radar beam can not penetrate through mountains and large buildings. The height of precipitating clouds varies with season and weather type, and so the radar sees to different distances at different times. In many parts of Europe, radars are quite close to each other, and the neighbouring radar fills in where one radar can not see. You can see the location of OPERA radars in the links above.

### **Radar shows rain and it is not raining here.**

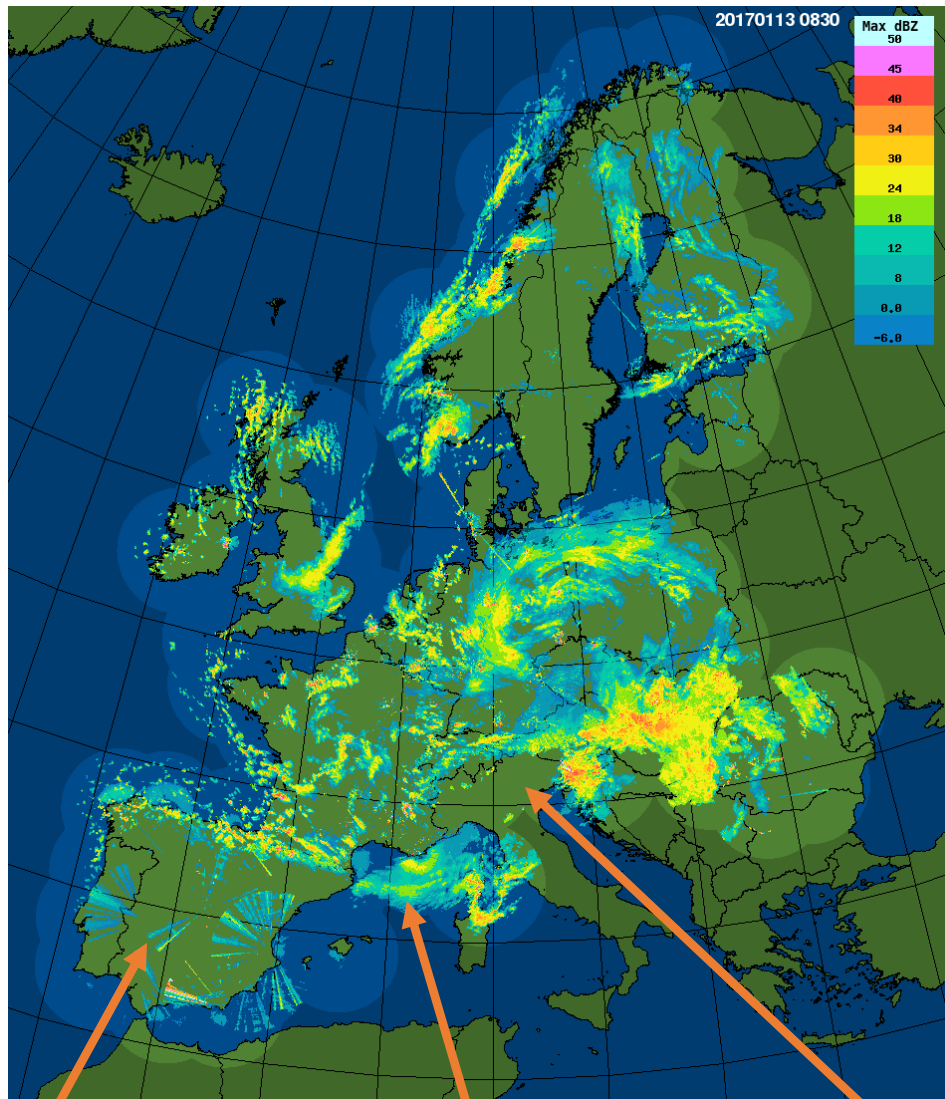
A radar works by measuring scattering of microwaves. Microwaves are reflected from not only raindrops, but a number of other items such as birds, mountains, We also receive microwaves which were not sent by the radar but other devices. OPERA project is working to develop better mechanisms to clean the images.

### **Strange patterns are seen on the radar.**

Usually any symmetrical patterns are not related to weather but some technological matters. OPERA project is working to develop better mechanisms to clean the images.

### **Funny dots appear on radar images after sunset.**

Birds.



<p><b>Interference.</b> Some other devices using the radar frequency.</p>	<p><b>Sea clutter.</b> Radar microwaves reflected from sea waves</p>	<p>Italian and Austrian data is not included in the composite</p>
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Example of phenomena seen in the maximum reflectivity composite. You can recognize many of the unnatural phenomena by scrolling the animation back and forth – they are not moving with the flow, as does the genuine precipitation.

Note this sample image was taken during annual maintenance of EUMETSAT satellite products – after 9 February 2017 we will again be able to remove some artefacts from areas which we know are cloud free.