Natural Hazards
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Discussions

Interactive comment on "An assessment of the potential of earth observation data to detect and monitor storm cells associated with natural hazards – an application to an extreme weather event in southeastern Mediterranean" *by* T. Mavrakou and C. Cartalis

Anonymous Referee #2

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In this study MSG images are used for the early detection and monitoring of the evolution of storm cells associated with MCSs. In particular, Airmass and Convection RGB composites are used at 15 minute time interval and applied to one case study (19-22 February 2013) when a depression developed over Africa and moved across the Mediterranean resulting in deep convection along its trajectory and in an extreme weather event in the Attica region in Greece. The article is reasonably well written and

the topic fits well with the scope of the journal. However, as it stands now, it offers a minimal contribution to the existing knowledge of the use of MSG SEVIRI data (in particular RGB composites) for detection and monitoring of severe convection. It is worth noting that the use of RGB composites at 15 minute time interval has become a widely used techniques for severe weather monitoring and operational nowcasting in different national and regional weather service agencies throughout Europe. These composites have been available, documented and used for several years now. On the EUMETSAT web site http://oiswww.eumetsat.org/IPPS/html/MSG/RGB/ there is a full description of how they are produced and how to intepret them and several applications and case studies are described (see also www.eumterain.org). Moreover, an "assessment" (referred to in the title) should be based on a significant number of case studies, while the paper is about the application of widely used MSG RGB composites to one case study only. In conclusion, in my opinion the paper is not suitable for publication.

Specific Comments

At the end of Section 3 the authors state: "In this study, improvements of the algorithms refer to (a) the estimation of the solar zenith angle per pixel, thus enabling the processing of MSG data, and (b) the production of the composites every 15 min". Besides the claimed use of the solar zenith angle correction (which should be described in detail), I do not see a new methodology developed.

It is well known that Airmass composite depicts well the synoptic situation and detects the PV anomaly prior to the depression development. In the present study the product is used also for storm cell detection (on 22 February). In Fig. 11 the Airmass RGB composite is shown at four specific times, and related to the precipitation maxima registered at three weather stations (Fig. 12). However, it is not clear why precisely these four images have been selected. There is no indication of the criteria used to establish that these four images have MCSs developed. What are the features of MCS's that are evident in these four images and that are not evident in all the other images in that time frame? How are the Convective storm composite images shown in Fig. 9 related

to precipitation records?

Geographical coordinates (Lat Lon) should be provided for all images, or evidence Attica region in some way (in Particular Fig. 6, 9, 11). It might be useful to indicate the position of the weather station (used as reference for precipitation amounts) in Fig. 11