Anonymous Referee #2

The paper entitled "3D evolution of Saharan dust transport towards Europe based on a 9-year EARLINET-optimized CALIPSO dataset" is an interesting analysis of mineral dust properties above North Africa, the Mediterranean and Europe that contains valuable information in 3 dimensions using CALIPSO products improved with EARLINET techniques and data. However, the manuscript needs to undergo some improvements before being published in ACP.

[REPLY] We thank the reviewer for the thorough revision and comments. Replies to the general and specific comments follow below.

<u>**General comments**</u>

First, I suggest to improve the English and writing throughout the manuscript.

[REPLY] We have revised the manuscript for language issues.

Additionally, results presented here are valuable and interesting but in general discussion need to be extended and completed at some points in Section 3. I suggest that the authors include more statistics such as the mean, standard deviation, extreme values, etc for some of the properties presented here and for the different regions.

[REPLY] We thank the reviewer for his suggestion. We revised Section 3 by including the discussion of DOD statistics (mean, standard deviation and extreme values - Section 3.1), the dust heights (standard deviations of CoM and TH – Section 3.2) and statistic on the extinction coefficient values (mean and Standard deviation - Section 3.3). The new discussions are the following:

Page 9, lines: 27: "More specific, during JFM (Figs. 1a, b) limited dust activity is observed almost uniformly over the Sahara desert. The DOD remains roughly over the entire study domain below 0.13 with 75% of the observations having DODs < 0.17, 95% of the observation having DODs < 0.5 and extreme values with DODs ~2."

Page 10, lines 1: "In the domains between 10° E - 30° E and 30° N - 40° N, 5% of the dust events are observed with DODs > 0.41, 1% with DODs >0.95 and extreme observations with DODs are up to 1.6."

Page 10, lines 7: "During AMJ (Figs 1c, d) dust production occurring over the entire Saharan desert with mean DOD values of 0.26 ± 0.26 and occurrences of 86%, uniformly at latitudes between 20° N and 30° N."

Page 10, lines 16:" In the domain between 10° W - 00° and 20° N - 35° N, the mean DOD is 0.43, with 25% of the dust observations having DODs > 0.69, 5% >1.2 and the extreme DODs up to 3 (Table 2)."

Page 10, lines 20 : "In the domain between 10° W - 00° and 35° N - 45° N, the mean DODs are 0.09 ±,0.14 with 5% of the dust observations having DODs >0.55 and extremes DODs up to 2.3."

Page 11, lines 16: “During JFM dust resides in general below 3 km a.s.e. (above surface elevation) over land with CoM at about 1.3 ± 1.6 km a.s.e. (Figs. 3a, b). Over the sea, several transport paths are discernible especially over eastern Mediterranean with dust tops traveling at 2.3 ± 1.9 km a.s.e. During AMJ, TH and CoM are up to 4.2 ± 1.7 $km$and around 2.4 ± 1.1 km a.s.e. respectively over eastern parts of Sahara.”

Page 11, lines 26: “This pattern leads to elevated dust at 3.0 ± 1.7 km a.s.e. and CoM at 1.6 ± 1.1 km a.s.e. over south European countries and Balkans. During OND the horizontal pattern is similar to JJA however with much lower heights (Figs. 3g, h).”

Page 13, lines 10: “Above the Balkans and during JFM values of 29 ± 65 Mm^{-1} are observed in the first 1.5 km, and 10 ± 30 Mm^{-1} between 2.5 – 3.5 km. In AMJ and JAS respectively, means of ~ 16 ± 40 Mm^{-1} and ~ 9 ± 20 Mm^{-1} are observed in altitudes between 1.5 to 5 km. The values of Clim-DE are higher (>45 Mm^{-1}) over Africa during winter and spring, in relation with the ones observed during the other two seasons (<45 Mm^{-1}) and reach high altitudes (5-6 km a.s.l.) during spring and summer. In summary, the obtained cross-sections for the five longitudinal zones indicate that higher extinction coefficient values are observed near the source and at low altitudes, where dust particles are efficiently deposited. Above NE Africa, the Clim-DE values are >45 Mm^{-1} throughout the year in altitudes up to 2 km a.s.l. during JFM and up to 4 km during AMJ and JJA. Moreover, the standard deviation of the means is around 130% at the altitudes up to 2 km and ~100% between 2 – 4 km, at all seasons. Above West Africa, the extreme Clim-DE values observed during JAS in the altitudes up to 2 km are 113 ± 131 Mm^{-1}. In C-E Mediterranean, dust is always present, with maximum extinctions during AMJ, reaching 27 ± 54 Mm^{-1} close to the surface and ~ 18 ± 30 Mm^{-1} during JAS and OND. In C-W Mediterranean, the highest means of JAS are ~16 ± 40 Mm^{-1}. For latitudes greater than 45° N, and during AMJ mean values of 8 ± 27 Mm^{-1} are 4 ± 16 Mm^{-1} are observed close to the surface above NE Europe and NW Europe respectively.”

Some sentences comparing the results obtained in Section 3 with results obtained in previous studies would also be useful.

[REPLY] We revised Section 3 by including discussion on the comparison of the results obtained in this work with results in previews studies (Papayannis et al. 2008; Balis et al. 2012; Mona et al. 2014). In section 3.2 we included a comparison with the dust plume heights documented by EARLINET. In Section 3.5 we included comparison of our trend with other studies over the same domain (Floutsi et al. 2016; Gkikas et al. 2013; Yoon et al. 2012; Georgoulias et al. 2016b). The new sections are:

Page 11, line 29: “In general, our results are in agreement with lidar-based studies which have been performed in several European sites. Papayannis et al. (2008) performed an exhaustive analysis on Saharan dust particles over Europe using EARLINET lidar profiles. They found that the dust layer center of mass extends from 3.0 to 3.8 km and the thickness ranges from 0.7 to 3.4 km. Specifically, Balis et al. (2012) calculated the mean base and top of dust layers in the eastern Mediterranean, Thessaloniki, to be around 2.5 ± 0.9 km and 4.2 ± 1.5 km, respectively. More recently, Mona et al. (2014) analyzed a long dataset of Saharan dust intrusions over Potenza, Italy, and found a mean layer centre of mass of 3.5 ± 1.5 km.”

Page 15, line 29: "In comparison with studies relevant to the time period considered in this work, the DOD decrease of 0.001 yr^{-1} over the northern coast of Africa is in agreement with Floutsi et al. (2016), who based on 12 years of MODIS-Aqua observations (2002-2014) reported an average decrease of 0.003 yr^{-1} for the coarse mode fraction of AOD over the broader Mediterranean Sea. Furthermore, over the same domain the decreasing trend of DOD coincides with the decrease of Saharan desert dust episodes as reported by Gkikas et al. (2013). Regarding the AERONET stations over the domain of northern Africa and Europe, Yoon et al. (2012) reported on the trends of AOD at 440 nm along with the corresponding Ångström Exponents (440 and 870nm). The documented negative trends over the AERONET stations of Avignon (France), Dakar (Senegal) and Ispra (Italy) are in agreement with the negative DOD reported here, although with discrepancies in the magnitude, while trend disagreements are observed over the AERONET station of Banizoumbou (Niger). The decreasing trends of DOD observed over the domain northern of Africa and Europe coincide with the generally documented downward AOD trends reported based on several satellite observations of MODIS/Aqua, MODIS/Terra, MISR and SeaWiFS (Pozzer et al., 2015; de Meij et al., 2012; Hsu et al., 2012; Georgoulias et al. 2016b). More particular, in the most recent study of Georgoulias et al. (2016b), using MODIS/Terra and MODIS/Agua observations, they reported negative statistically significant trends over Algeria, Egypt and the Mediterranean and positive trends over Middle East. Overall, for the Mediterranean they reported an AOD trend of -0.0008 yr^{-1} for the MODIS/Terra observations (2000 – 2015) and -0.0020 $yr^{-1}$for the MODIS/Aqua observations (2002 – 2015), with the trends being statistical significant at the 95% confidence level in both cases."

They should also consider the use of tables to summarize main results, making easier for the reader to focus on the main findings of the study.

[REPLY] We introduced a new Table 2 where we summarize main results for different regions and seasons. We agree with the reviewer that this will help the reader to focus on our main findings. The new Table 2 is (page 37):

Table 2: Regional statistics on mean dust optical depth, max values, dust layer center of mass (CoM) and top height (TH) (a. s. e.), ratio of dust observations to cloud-free observations, ratio of cloud-free observations to total observations and domain boundaries.

	DOD Mean ± St.dev.	DOD Max Vals. (Perc. 95%)	CoM ± St.dev.	Top Height ± St.dev.	Nr Dst in Nr cl-free	Nr cl-free in Nr obs.	Domain
NE Africa							[10E,30E] [20N,30N]
JFM	0.11 ± 0.17	2.19 (0.42)	1.5 ± 1.2	2.6 ± 1.8	0.72	0.84	
AMJ	0.26 ± 0.26	3.09 (0.73)	2.4 ± 1.1	4.2 ± 1.7	0.86	0.86	
JAS	0.18 ± 0.21	2.63 (0.56)	2.3 ± 1.0	4.0 ± 1.4	0.84	0.93	
OND	0.11 ± 0.14	2.93 (0.34)	1.9 ± 0.9	3.3 ± 1.4	0.81	0.93	
NW Africa							[10W,10E] [20N,35N]
JFM	0.13 ± 0.18	1.86 (0.47)	1.5 ± 1.3	2.4 ± 1.8	0.67	0.82	
AMJ	0.26 ± 0.26	2.31 (0.75)	2.2 ± 1.2	3.8 ± 1.6	0.86	0.83	
JAS	0.43 ± 0.39	3.03 (1.20)	2.9 ± 1.0	5.1 ± 1.3	0.94	0.88	
OND	0.22 ± 0.26	2.59 (0.71)	2.2 ± 1.0	3.9 ± 1.6	0.82	0.81	
C-E Med.							[10E,30E] [30N,45N]
JFM	0.09 ± 0.18	1.62 (0.41)	1.3 ± 1.4	2.3 ± 1.9	0.69	0.70	
AMJ	0.12 ± 0.20	2.74 (0.51)	1.8 ± 1.5	3.2 ± 2.1	0.82	0.76	
JAS	0.08 ± 0.12	1.80 (0.33)	1.6 ± 1.1	3.0 ± 1.7	0.89	0.96	
	0.08 ± 0.11	1.55 (0.31)	1.4 ± 1.1	2.7 ± 1.6	0.82	0.80	

OND							
C-W Med. JFM AMJ JAS OND	0.03 ± 0.06 0.05 ± 0.10 0.09 ± 0.14 0.05 ± 0.09	1.09 (0.11) 1.35 (0.25) 2.33 (0.36) 1.62 (0.20)	1.3 ± 1.6 1.8 ± 1.6 1.9 ± 1.2 1.3 ± 1.2	2.0 ± 1.9 2.9 ± 2.2 3.3 ± 1.8 2.3 ± 1.6	0.49 0.65 0.75 0.63	0.57 0.61 0.80 0.64	[10W,10E] [35N,45N]
NE Europe JFM AMJ JAS OND	0.025 ± 0.055 0.033 ± 0.062 0.032 ± 0.045 0.023 ± 0.043	0.97 (0.11) 1.61 (0.12) 0.90 (0.11) 0.50 (0.09)	1.2 ± 1.4 1.6 ± 1.2 1.6 ± 1.1 1.2 ± 1.0	1.7 ± 1.7 2.5 ± 1.6 2.7 ± 1.4 1.9 ± 1.4	0.37 0.61 0.60 0.49	0.28 0.47 0.58 0.43	[10E,30E] [45N,60N]
NW Europe JFM AMJ JAS OND	0.015 ± 0.033 0.023 ± 0.037 0.022 ± 0.042 0.018 ± 0.035	0.47 (0.06) 0.73 (0.08) 0.93 (0.08) 0.57 (0.07)	1.2 ± 1.6 1.5 ± 1.6 1.4 ± 1.5 1.1 ± 1.2	1.7 ± 1.7 2.2 ± 1.9 2.1 ± 1.7 1.7 ± 1.4	0.36 0.52 0.43 0.40	0.36 0.47 0.52 0.44	[10W,10E] [45N,60N]

<u>Detailed comments</u>

I suggest to replace the word utilize by use

[REPLY] It is replaced throughout the manuscript.

Page 2, line 26: Replace “means of identifying” by “mean of identifying”

[REPLY] It is replaced.

Page 2, line 29: Remove “a” before pure dust extinction

[REPLY] It is removed.

Page 2, line 31: Replace later by latter

[REPLY] It is replaced.

Page 3, line 17-18: Is the climatology by Winker et al, 2013 on dust properties? If not, remove it from the paragraph

[REPLY] We changed the sentence in order to clarify the contribution of this study:

Page 3, line 24: “Moreover, Winker et al. (2013) provided a 3D global aerosol climatology from five-year CALIPSO data, along with the global distribution of mineral dust, derived using the ratio of columnar dust AOD to total AOD.”

Page 4, line 24: Replace CALISPO by CALIPSO

[REPLY] It is corrected.

Page 4, line 27: Explain the acronym LIVAS

[REPLY] We added the acronym’s explanation:

Page 5, line 3: “This product is a prominent outcome from the EARLINET-ESA collaboration for the LIVAS database (LIdar climatology of Vertical Aerosol Structure for space-based lidar simulation studies; Amiridis et al., 2015)”.

Page 5, line 5: Did you quantify this error? Could you provide an estimated value here?

[REPLY] We added the information in this sentence:

Page 5, lines 13: “During SAMUM 1 and 2 campaigns Saharan dust δ_{nd} values varied between 0.27 and 0.35 at 532 nm (Ansmann et al., 2011), introducing 4% error in our calculations for the dust separated backscatter values.”

Page 5, line 6: I suggest replacing “Based on this this technique” by “On using this technique”

[REPLY] The sentence is rephrased.

Page 5, line 31: I suggest starting a new paragraph from “The conditional dust product: : :”

[REPLY] Done.

Page 6, line 9: What do you mean they should be used with caution? Because of the definition provided here, it is expected that Con-DE is larger than total extinction for some cases, but it is still correct

[REPLY] This sentence has been removed from the revised manuscript.

Page 6, lines 11-16: It will be useful to include in this paragraph the information about the region studied and the period covered

[REPLY] We changed the first sentence as:

Page 8, line 21: “In Sect. 3.1 - 3.4, we examine the inter-seasonal variation and intensity of dust transport patterns, from 2007 to 2015, for the domain 20° W to 30° E and 20° N to 60° N.”

Page 6, line 28: Remove “of the” before “mean DOD values”

[REPLY] It is removed.

Page 6, line 30: Please add a short sentence here explaining why dust transport is suppressed

[REPLY] We added the sentence:

Page 9, line 26: “During autumn and winter the emission and transport of dust towards Europe is suppressed due to the more effective removal processes and due to the atmospheric dynamics favouring the transport of dust towards the Atlantic (e.g. Israelevich et al., 2002; Schepanski et al., 2009).”

Page 7, line 17: Provide the precise value of the mean DOD and its standard deviation instead of ranges or rephrase the sentence

[REPLY] We rephrased the sentence:

“Mean DOD over these areas reaches values of 0.12 ± 0.20 (Fig. 1d) and extreme observations observed with DODs up to 2.74.”

Page 8, line 4: Does represent the total aerosol extinction or the dust aerosol extinction?

[REPLY] It represents the dust extinction. We improved the sentence: “α denotes the dust extinction coefficient at altitude z.”

Page 8, line 22: Replace “situation” by “horizontal pattern” or “horizontal distribution”

[REPLY] We rephrased as:

Page 11, line 27: "During OND the horizontal pattern is similar to JJA however with much lower heights (Figs. 3g, h).”

Page 8, line 24: I suggest renaming section 3.3. as “Climatological dust cross sections” to be coherent with the title in section 3.4.

[REPLY] It has been replaced.

Page 9, line 3: what do you mean by mobilization of the sources here? Please, elaborate more this sentence

[REPLY] We changed the sentence as:

Page 13, line 13: “The spring and summer peaks indicate the increased activity of Saharan dust sources (Moulin et al., 1998; Schepanski et al., 2007).”

Figure 3 (4, and 5): Please, increase the size of the axis labels text for the Domain figures

[REPLY] The label size is increased and, now, it is more visible in the new version of the manuscript.

Page 9, line 12-13: Elaborate this sentence

[REPLY] We changed the sentence accordingly:

Page 12, line 23: “A steep decrease in extinction values is observed along the African coastline with values of 20 Mm^{-1} above the southern part of the Iberian Peninsula (38°-42° N) where dust is trapped by the Pyrenees. The distinct decrease of extinction values across the African coastline is an indication that dust is always present inside the rather deep Saharan boundary layer while it is only occasionally transferred towards the Mediterranean when atmospheric dynamics favor this kind of flow.”

Page 9, line 15: Similar Clim-DE values are observed between 50-60 deg N for other longitudinal zones, why do you point it out for this specific zone? Also, what is the uncertainty for the Clim-DE product? Values of 5 Mm-1 are very low and could fall within the uncertainty. Add discussion regarding the uncertainty throughout the manuscript where needed

[REPLY] We changed the sentence:

Page 12, line 27: “At higher latitudes, the CALIPSO dust extinction is drastically reduced but still observed in ranges of 1-2 km a.s.l. and with mean Clim-DE values of 5 Mm^{-1}.”

In Clim-DE and Cond-DE products, the uncertainty of the dust extinction values close to the surface and at high latitudes are < 54%. At high altitudes and for latitudes up to 45°N, the uncertainty of the values is < 20%. We added this in the manuscript in the new section 2.4 addreses the uncertainties of the product:

Page 7, line 26: “In general, Clim-DE and Cond-DE products, the uncertainty of the dust extinction values close to the surface and at high latitudes is < 54%. At high altitudes and for latitudes up to 45°N, the uncertainty of the values is < 20%.”

Page 9, line 16: What are the criteria to consider a value of 10 Mm-1 “significantly”high?

[REPLY]. We removed this statement. The sentence now reads:

Page 12, line 28: “Moving eastwards (0°-10° E) elevated dust is trapped topographically by the Alps (47°-52° N) with values >10 Mm^{-1}.”

Page 9, line 29-33: You should consider adding here more discussion and some statistical parameters (e.g. mean, standard deviation, maxima, minima, etc) to enrich this summary. Also, some sentences about the dust vertical distribution in the summary are missing.

[REPLY] Detailed statistics and have been added in our manuscript. The discussion about dust vertical distribution has been also extended:

Page 13, line 14: “In summary, the obtained cross-sections for the five longitudinal zones indicate that higher extinction coefficient values are observed near the source and at low altitudes, where dust particles are efficiently deposited. Above NE Africa, the Clim-DE values are >45 Mm^{-1} throughout the year in altitudes up to 2 km a.s.l. during JFM and up to 4 km during AMJ and JJA. Moreover, the standard deviation of the means is around 130% at the altitudes up to 2 km and ~100% between 2 – 4 km, at all seasons. Above West Africa, the extreme Clim-DE values observed during JAS in the altitudes up to 2 km are 113 ± 131 Mm^{-1}. In C-E Mediterranean, dust is always present, with maximum extinctions during AMJ, reaching 27 ± 54 Mm^{-1} close to the surface and ~ 18 ± 30 Mm^{-1} during JAS and OND. In C-W Mediterranean, the highest means of JAS are ~16 ± 40 Mm^{-1}. For latitudes greater than 45° N, and during AMJ mean values of 8 ± 27 Mm^{-1} are 4 ± 16 Mm^{-1} are observed close to the surface above NE Europe and NW Europe respectively.”

Page 10, line 1: How is the impact on cloud formation estimated?

REPLY] The impact of dust on cloud formation is part of a second study we are working on. In this forthcoming work, we will use dust profiles from CALIPSOand EARLINET parameterizations to calculate the dust mass concentration for particles with radius greater than 250 nm and to estimate ice nuclei concentration profilesfollowing the technique provided by Mamouri and Ansmann (2016). We removed this sentence from the revised manuscript to avoid confusion.

Page 10, line 2: Please, include additional information and discussion on this part related to the dust mass concentration calculation. What is the point of calculating it here?

[REPLY] This sentenced has been replaced by:

Page 13, line 23: "The dust mass concentration can be obtained from the optical properties of dust with an uncertainty of 20-30% (Ansmann et al., 2012; Mamouri and Ansmann, 2014)."

Page 10, lines 12-14: The information included here should be provided earlier in the section, before discussing the results.

[REPLY] The information regarding the Clim-DE and Con-DE products is provided in section 2.3. Here, we repeat the difference between the products in order to introduce the next paragraph, which is devoted to the Con product description. We rephrased the sentence to be clearer:

Page 13, line 28: "The decreasing intensity with height and latitude found in the Clim-DE product is representative of the average dust distribution over the area. However, this behaviour is not representative of the distribution during dust episodes over Europe. This is because the extinction coefficient values presented in Fig. 4 for the Clim-DE product are produced by averaging partially and fully dominated dust cases. In order to describe the spatial patterns and the intensity of the dust plumes during episodes only, we introduce and discuss the Con-DE product in the next section."

Page 10, line 23: Replace "populations of dust" by "dust features"

[REPLY] It is replaced.

Page 10, line 25: Indicate the other seasons and regions where the two distinct layers are observed

[REPLY] We deleted this part of the paper.

Page 11, lines 3-12: This paragraph should be moved to later on in the manuscript, in order to keep all the discussion related to figure 4 together. Additionally, more discussion on depolarization should be provided here.

[REPLY] We deleted this part of the manuscript.

Page 11, line 16: Replace "in the same range with" by "in the same range as"

[REPLY] It is replaced.

Page 11, line 32: At the end of section 3.3 you mentioned that Con-De will be used to discuss if the decreasing intensity with height and latitude is representative, but this is not discussed in section 3.4. Please, include some sentences. Additionally, some more discussion comparing the results from sections 3.4 and 3.3 will be interesting.

[REPLY] The paragraph at the end of 3.3 has been changed to highlight the difference between the two products, and to justify the need of discussing both.

Regarding the comparison of the two products presented in 3.3 and 3.4, we have included a comment in the first paragraph:

Page 14, line 7: "This is because the two products differ mostly over areas which are not dominated by dust." There is no meaning to our opinion to elaborate further on this comparison, since the difference between the two products has to do with the frequency of occurrence of dust in relation to other aerosol types. Although we introduce a new Table 3 in the end of Sect. 3.4 so as the readers can have a quantitative representation of the two products. The new part is:

Page 15, line 10: "A quantitative representation of the Clim-DE and Con-DE products is provided in Table 3. In this, regional statistics on the two products, along with their standard deviation are provided for three altitudinal ranges (0 – 2, 2 – 4 and 4 – 6 km a.s.l.)."

Table 3: Regional statistics on the dust extinction coefficient for altitudes between 0 to 2km, 2 to 4 km and 4 to 6 km (a. s. l.).

	0 – 2 km	**2 – 4 km**	**4 – 6 km**	
	Clim-DE / Cond-DE / St. dev	**Clim-DE / Cond-DE / St. dev**	**Clim-DE / Cond-DE / St. dev**	**Domain**
NE Africa				[10E,30E] [20N,30N]
JFM	42 / 50 / 74 Mm^{-1}	7 / 43 / 20 Mm^{-1}	0 / 25 / 5 Mm^{-1}	
AMJ	66 / 66 / 88	44 / 53 / 48	18 / 48 / 26	
JAS	42 / 42 / 64	30 / 40 / 37	13 / 43 / 22	
OND	34 / 34 / 51	17 / 32 / 24	3 / 27 / 9	
NW Africa				[10W,10E] [20N,35N]
JFM	46 / 60 / 80 Mm^{-1}	6 / 45 / 18 Mm^{-1}	0 / 29 / 5 Mm^{-1}	
AMJ	73 / 73 / 90	41 / 59 / 49	13 / 51 / 25	
JAS	113 / 113 / 131	83 / 83 / 71	43 / 50 / 40	
OND	59 / 59 / 86	35 / 48 / 43	10 / 36 / 19	
C-E Med.				[10E,30E] [30N,45N]
JFM	22 / 44 / 55 Mm^{-1}	4 / 48 / 16 Mm^{-1}	0 / 31 / 5 Mm^{-1}	
AMJ	27 / 35 / 54	17 / 52 / 34	5 / 42 / 15	
JAS	18 / 18 / 28	13 / 33 / 22	4 / 37 / 12	
OND	19 / 23 / 32	10 / 35 / 19	2 / 27 / 7	
C-W Med.				[10W,10E] [35N,45N]
JFM	5 / 24 / 33 Mm^{-1}	1 / 32 / 7 Mm^{-1}	0 / 21 / 2 Mm^{-1}	
AMJ	10 / 23 / 38	6 / 35 / 19	1 / 31 / 8	
JAS	16 / 22 / 40	13 / 33 / 23	5 / 38 / 14	
OND	10 / 22 / 33	4 / 29 / 14	0 / 29 / 4	
NE Europe				[10E,30E] [45N,60N]
JFM	4 / 37 / 41 Mm^{-1}	0 / 29 / 5 Mm^{-1}	0 / 15 / 1 Mm^{-1}	
AMJ	8 / 17 / 27	2 / 21 / 17	0 / 14 / 2	
JAS	7 / 14 / 21	2 / 16 / 9	0 / 16 / 2	
OND	4 / 16 / 19	1 / 21 / 6	0 / 14 / 1	
NW Europe				[10W,10E] [45N,60N]
JFM	1 / 16 / 16 Mm^{-1}	0 / 16 / 2 Mm^{-1}	0 / 15 / 1 Mm^{-1}	
AMJ	4 / 16 / 16	1 / 21 / 11	0 / 14 / 2	
JAS	3 / 15 / 15	1 / 22 / 7	0 / 18 / 2	
OND	2 / 16 / 15	0 / 23 / 4	0 / 13 / 0	

Page 12, line 18: Replace "statistical significant" by "statistically significant"

[REPLY] It is replaced.