We would like to thank all referees for their contribution and the discussion, which will help us to improve the manuscript. Moreover, we appreciate that all referees valued the scientific relevance of the proposed study. We will consider all the comments of the three reports and supplement material for the revised version of the manuscript. A detailed author comment to all remarks follows below.

AUTHOR COMMENT TO RC #1

General Remark:

Anonymous Referee #1 **(AR1)**: The present manuscript on monthly variation of the erosivity in Switzerland was reviewed. I buy such studies, since I am working in this field and believe in the importance of the work for proper management of soil and water conservation. However, the present manuscript suffers some deficits shown in the manuscript. Besides those, the title does not fit the main context, the literature reviewing is incomplete, the methodology is not well documented, no comprehensive discussion has been provided and finally some discrepancies are seen in presentations and in the literature and citations. In over all, the manuscript needs moderate revision to be finally accepted.

Response-1: "title does not fit the main context" – After your recommendation on revising the title in RC2 (doi:10.5194/hess-2016-208-RC2) and receiving another criticism on the title by the anonymous Referee #3 (doi:10.5194/hess-2016-208-RC5) we proposed a revised title for the manuscript in SC3 (doi:10.5194/hess-2016-208-SC3), which fits the overall temporal resolution of the study (monthly) and avoids the fuzzy term "dynamic". The revised title of the manuscript is: "Regionalization of Monthly Rainfall Erosivity Patterns in Switzerland". We hope this revised title meet the study's focus on modeling monthly temporal patterns and national spatial patterns for Switzerland.

Response-2: "literature reviewing is incomplete" – We appreciate your recommended literature and paid more attention to continental, national and regional assessments on monthly (or at least seasonal) rainfall erosivity. We will include 30 additional studies in the revised manuscript. The literature review in the present study focused on monthly or at least seasonal rainfall erosivity evaluations. We feel confident that the review of previous studies on the topic with a certain temporal and regional focus is more relevant for a comprehensive introduction than reviewing all publications related to the topic. A quick search for "rainfall erosivity" on web of science yielded 661 results. For this reason, we had and still have to narrow our literature review.

Response-3: "Methodology is not well documented" – The used methodology will be presented in greater detail in Section 2.4. To avoid misunderstandings regarding the techniques of "regression" and "kriging" as a combined method, the linkage of both is presented in a clearer way and supporting literature will be added to the revised manuscript.

Response-4: "no comprehensive discussion" – As we stated in Short Comment #1 (doi:10.5194/hess-2016-208-SC1), the results section and discussion section are merged. The discussion follows the results in each subsection. To avoid repetition and redundancy, no comprehensive discussion was added. We will revise the respective section (3) in the new manuscript.

Response-5: "discrepancies in presentation, literature and citations" – We already apologized in the Short Comment #1 (doi:10.5194/hess-2016-208-SC1) that these issues occurred during the final formatting of the manuscript. The citation software did not work properly. Regarding the errors in presentation, the uppercase letters in the units got messed up as well during the final formatting of the manuscript. We appreciate the remarks and will check the formatting as well the references carefully for the revised manuscript.

Major Issues appended in the pdf-file:

AR1: How Kriging method could be applied for the study which has been conducted in mountainous Switzerland??

Response-6: We suppose there was a misunderstanding in the application of the regression-kriging. The kriging method has solely been used to interpolate the residues coming from the regression between the spatial covariates and the monthly R-factor following the principal of regression-kriging (McBratney et al. 2000; Hengl et al., 2004; Hengl, 2007; Hengl et al., 2007). These residuals emerging from the regression analysis are normally distributed and as such fulfill the criteria of a kriging approach. The linkage of "regression" and "kriging" as regression-kriging will be presented in a clearer way and supporting literature will be added in the revised manuscript.

AR1: Why the authors have used the seasonal variation in the title while they have focused on monthly variation with further resolution? To me the title can also changed to monthly variation of .....

Response-7: See also Response-1. Initially, we decided to use the more general term "seasonal" to include the different temporal resolutions (daily, monthly, and seasonal). However, we understand the recommendation of Referee #1 to change the title accordingly to the highest resolution of the data (doi:10.5194/hess-2016-208-RC2). The new title is: "Regionalization of Monthly Rainfall Erosivity Patterns in Switzerland".

AR1: Has it [snow depth] been considered in the original model developed by the USLE model??

Response-8: This might be a misunderstanding. Snow depth was not considered in the calculation of the R-factor following Renard et al. (1997). In our study snow depth was used as a spatial covariate to interpolate the R-factor values at the stations. Still, the chosen covariates have a relation to the spatio-temporal distribution of rainfall erosivity. In an alpine country like Switzerland, extreme rainfall events in winter occur as snow. The higher the proportion of snow the lower is the expected rainfall erosivity. Panagos et al. (2016b) already discussed the limitations for the spatial prediction of months with lower R-factors. Therefore we had to find significant winter covariates when rainfall erosivity is usually relative low. As such, snow depth was selected as a significant ($p<0.1$) covariate for January, February, and November as well as for March, April, and May.

AR1: How did you use it [the hail erosivity]?? (Page 3, line 27)

Response-9: The observations of Hurni (1978) were only made for single plots in Switzerland, and hail-induced erosivity is not well studied and commonly neglected in erosion studies with three exceptions (Rosewell 1986; Coppus & Imeson, 2002; French et al., 2013) The knowledge we have on hail erosivity is currently too little to be incorporated in a national study, but we wanted to raise awareness to this process in the discussion. The fact that hail was not considered in our calculation will be better described in the revised manuscript now.

AR1: How GLM has been used for interpolation?? (Page 4, line 24)

Response-10: The GLM represents the regression part of the regression-kriging technique. The model relates the rainfall erosivity calculated for single stations (target variables) to the spatial covariates (Table 1) and predicts rainfall erosivity for all areas where the spatial covariates are available (Odeh et al., 1995; McBratney et al., 2000). Since the spatial patterns change from month to month, a regression model of each month was elaborated (Table 2).

AR1: What is the necessity of this statement?? [A mapping of the seasonality of the C-factor for a subsequent synthesis to a dynamic soil erosion risk assessment for Switzerland is envisaged in a later study.] (Page 10, line 25/26)

Response-11: In the final conclusion and outlook chapter we provide an outlook for the application of the Swiss monthly erosivity maps. Currently, we are working on a monthly (dynamic) soil erosion risk assessment for Switzerland based on RUSLE, which also requires monthly data for vegetation cover (C-factor). This might help to model soil erosion risk in a more realistic and time-dependent way since the processes of water erosion are not uniform among a year. With that statement, we want to clarify the importance of the combination of both factors for for several corresponding time steps throughout the year.

Minor Issues:

Page 1; line 29, 30: “delete some redundant Keywords” – done

Page 2; line 7 & Page 3; line 6 & others: “-1” – formatted in the revised manuscript to “$^{-1}$”

Page 3; line 27 & others: “reference?” – checked and added/deleted to the revised manuscript

Page 5; line 5: “Conclude the reference for this [significance level of 0.1].” – Kutner et al., 2005; Gupta & Guttman, 2013.

Page 5; line 13 & others: “Twelve” – numbers lower than 13 are changed to character

Page 6, line 6, 8 & 10: “Dabny” – changed to “Dabney”

Page 6, line 27: “Sadeghi and Hazbavi, 2015a; Sadeghi and Tavangar, 2015b” – we appreciate the literature suggestion

Page 11-16: “references” – we checked and revised the references carefully according to the journals style guide.

Page 23 & 27: “Please edit the January word for the first map of this Figure.” – Thanks for the note. We changed it to January.

Page 26: “the color of the lines is very similar and distinguishing them is very difficult for the reviewer. Please use from the different colors and with different thickness too.” – The colors of this figure are inspired by the color scheme of Fig. 1 in the original manuscript what makes it easier to identify the regions. Another high contrast color scheme appears more disturbing (see attached Figure 1). We prefer to stay with the original color set in the revised manuscript which is more harmonized. Different thickness would indicate different importance, but all biogeographic regions are equally treated. The lines for Europe and Switzerland already show another line type to distinguish them from the other regions.

Page 27 & 28: “Please check the unit. MJ ha-1 h-1 or MJ mm ha-1 h-1? and then check the values.” - Thank you very much for the note. It was simply a typo. We proofed and changed it throughout the manuscript.

AUTHOR COMMENT TO RC #2

General Remark:

***Anonymous Referee #2* (AR2)**: A network of 87 precipitation gauging stations with 10-minute interval resolution data across Switzerland was used to calculate at-site monthly average rainfall erosivity and Regession-Kriging interpolation method was used to generate monthly erosivity maps for the study area. The biggest concern is the limitation of novelty. Spatial and temporal variability of rainfall erosivity factor for Switzerland has been explored by Meusburger et al. (2012), in which 71 stations with 10-minute interval data were used and Regession-Kriging interpolation method was used. I admit that the work is useful in practical soil erosion estimation application when (R)USLE model is planned to be used because "To calculate the seasonal or average annual soil erodibility factor and the seasonal or average annual cover-management factor, the distribution of EI is needed." (AH 703, P30, Renard et al., 1997). However, this work may be more suitable as a technical report rather than a scientific paper in HESS.

AR2: "limitation in novelty of the manuscript and similarities (number of stations, methodology based on regression-kriging) of the present manuscript to Meusburger et al. (2012)"

Response-12: Like already stated in the SC2 in the discussion (doi:10.5194/hess-2016-208-SC2), the manuscript "Seasonal Dynamics of Rainfall Erosivity" by Schmidt et al. (2016) and "Spatial and temporal variability of rainfall erosivity factor for Switzerland" by Meusburger et al. (2012) are related to each other by region and authors. Although the methodology seems to be similar, the present study is not only an advancement as we add new know-how, but contributes totally new aspects with seasonal components, erosivity density and cumulative daily sums per biogeographic region. We emphasize the production of monthly R-factor maps for Switzerland (instead of the annual average, presented by Meusburger et al. 2012). Since spatial and temporal mapping is done, the quality of covariates was significantly improved compared to the previous study which enhanced the geostatistical capacity. Meusburger et al. (2012) used latitude, longitude, average annual precipitation, biogeographic units, aspect (25m) and elevation (25m). In our new study, the covariates (see Table 1 in manuscript) used for predicting the monthly R-factors have a spatial resolution down to 2m (SwissTopo3D Digital Elevation Model) and an at least monthly temporal resolution. As large parts of the study are situated in the Alpine region, we noticed a high intra-annual variability which requests a variety of erosivity influencing covariates. The database in the present study was extended by 23% (from 71 to 87) compared to Meusburger et al. (2012), and some stations were upgraded with longer time series. Referee #2 pointed out that the temporal distribution of EIs (and therefore R-factors) is needed to calculate seasonal K- and C-factors. Our long-term aim is a seasonal soil erosion risk assessment for Switzerland based on a dynamic approach. That assessment could not be realized with an R-factor map, which aggregates R-factors either regionally or temporally as was done by Meusburger et al. (2012).

AR2: "work may be more suitable as a technical report rather than a scientific paper in HESS"

Response-13: We are confident that the paper will be of interest to the scientific community (use of regression-kriging with stepwise variable selection based on high resolution data, LOOCV as an improved cross validation method, monthly assessment) as well as to agricultural management, stakeholders and policy makers (detailed discussion of spatio-temporal R-factor distribution, spatial variation mapping, daily cumulative sums, erosivity density). As such it attrached already 264 views and downloads until 14th of July. The previous paper (Meusburger et al., 2012) about the annual rainfall erosivity of Switzerland, with a total of 106 cites (according to crossref) and more than 4000 article views within a period of 4 years, shows the relevance of the topic. All three reviews confirmed the practical applicability of the study for "proper management of soil and water conservation" (doi:10.5194/hess-2016-208-RC1), "soil erosion estimation application" (doi:10.5194/hess-2016-208-RC3), "applications involving soil loss and agricultural productivity" (doi:10.5194/hess-2016-208-RC5). The relevance of the results for agricultural management, stakeholders and policy makers will be reduced by publishing the manuscript as a technical note. According to HESS, a publication as technical note should "report new developments, significant advances, and novel aspects of experimental and theoretical methods and techniques which are relevant for scientific investigations […]". Since our focus is not on the advance of a technique but on the relevance of the produced results, we believe that a research article is more appropriate.

Major Issues appended in the pdf-file:

AR2: Since rainfall erosivity doesn't take the snow into consideration in your study, why you use snow depth as the covariate? (Page 1, line 19)

Response-14: Our approach relies on predicting rainfall erosivity for Switzerland with high spatial explanatory data. As such, we are looking for covariates which have a relation to the spatio-temporal distribution of rainfall erosivity. In an alpine country like Switzerland, extreme rainfall events in winter often occur as snow. Thus, we assume a negative correlation between snow depth and R-factor. Please also refer to Response-8.

AR2: The conclusion has already been presented in Meusburger et al. (2012) (Page 1, line 21)

Response-15: Yes, Meusburger et al. (2012) already considered the temporal distribution of R-factors among a year. However, they only investigated the R-factors at 71 gauging stations. The spatial distribution of R-factor in each single month was not investigated. The new approach follows a spatio-temporal mapping approach with twelve different regression equations (and twelve monthly R-factor maps) based on high resolution datasets. A more detailed answer regarding the novelty of the manuscript has been mentioned above (Response-12).

AR2: If the spatial difference of the seasonality is significant statistically? or in practical, if the difference is large enough to lead to a significant difference in the K and C factor since the EI distribution is mainly useful in estimating K and C factor in (R)USLE models? If it is not, then covariates with high resolution may be not very necessary. (page 1, line 25)

Response-16:

The K-factor can be estimated by two approaches. The original one is based on plot measurements the second one is based on the nomograph which has been derived from plenty of those plot measurements. The latter is used for larger spatial assessments that we are also going to use for Switzerland.

If the K-factor is calculated using the nomograph of Wischmeier et al. (1971) and following the approach of **Auerswald** et al. (2014) the K-factor parameters are derived from soil texture, organic matter, coarse fragments, structure-, and permeability class. In that case, no seasonality of the K-factor can be considered because these parameters show only low or no temporal variability.

Nevertheless, following the original approach to measure the K-factor, spatial differences in R-factor will have a significant impact and impact directly the magnitude of K-factor. The mentioned approach takes into account the absolute values of rainfall erosivity and is per definition the ratio of A/EI_{30} if all other USLE/ RUSLE factors are equal to 1 (Foster et al., 2008). If we assume a constant soil loss from the unit plot of 1 t ha^{-1}, the K-factor will vary according to the absolute EI_{30} at different locations for the same dates 02^{nd} of May 2010 and 06^{th} of June 2010 (cf. attached Table 1). Vice versa, assuming a constant K-factor, results in unequal soil losses according to the EI_{30}-values. The values of Table 1 show the temporal and spatial variations for different storm events and locations. Thus, for a scientist working on the plot scale, it will be decisive to obtain an EI_{30} estimated that is as accurate as possible using high resolution covariates.

The influence of R- to C-factor is obvious in the calculation of C-factors (Schwertmann et al., 1987; Wischmeier & Smith, 1978; Renard et al., 1997). The C-factor value for a particular land-cover type is the weighted average of soil loss ratios (SLRs) and ranges between 0 and 1. The SLR's are calculated for several time intervals during a year and multiplied by the corresponding percentage of annual rainfall erosivity to estimate the C-factor. C-factors for the Swiss biogeographic regions, obtained from the SLRs of a common 3-year crop rotation (of corn-winter wheat-winter barley) and the percentages of annual rainfall erosivity, ranging from 0.141 (Eastern Alps) to 0.186 (Western Alps) (cf. attached Table 2). For Bavaria, a C-factor range from 0.04 to 0.4 for a similar crop rotation was determined (Schwertmann et al., 1987). The range of Switzerland s biogeographic regions shows a variation of 11% within the Bavarian maximum and minimum range. That variation between the biogeographic regions (even in the adjacent regions Eastern Alps and Western Alps) proofs the spatial differences in the C-factors.

The Wilcoxon signed rank test for the percentage of the cumulative R-factor confirmed that all combinations of biogeographic regions are significantly different ($p < 0.05$, (attached Table 3). Therefore, we can identify significant spatial differences between all regions.

K-factor as well as the calculation as the C-factor calculation as the Wilcoxon signed tank test could confirm spatial and temporal differences.

AR2: If this work is also intended to be useful in the (R)USLE model, the EI distribution (as a percentage of the annual value) for twenty-four 15-d periods is recommended (Renard et al., 1997) instead of the monthly rainfall erosivity. (page 2, line 15)

Response-17: We are aware of the RUSLE-inclusion as twenty-four 15-days intervals (according to Renard et al., 1997). The twenty-four 15-day periods (clustered by biogeographic region) can be extracted as percentage of the total annual rainfall erosivity in Fig. 6 of the original manuscript. The enclosed Fig. 2 also includes the 15-day interval breaks. As we show in Response-16, the practical use of the EI distribution (as a percentage of the annual value) is already allowed for the C-factor calculations at each station (from original Fig. 6, attached Fig. 3).

However, for the spatio-temporal mapping, we had to face some limitations. Some covariates (EURO4M-APGD, RhiresM) were only available on a monthly scale. Thus, we had to map the rainfall erosivity of Switzerland on a monthly basis. Furthermore, monthly or at least seasonal rainfall erosivity is (apart from the inclusion into the overall RUSLE-model) an important and meaningful indicator itself for the practical identification of a high impact of rainfall on soils if vegetation cover is sparse or unstable.

AR2: Apparently, R factor is not a product of er and I30. EI index is a product of storm energy E and I30. R is the average annual summation of EI. Storm energy is the summation of (ervr) in Equation (2). (Page 3, line 3)

Response-18: We appreciate your comment. Accidently, we mixed up the terms kinetic rainfall energy and total storm energy in the text but provided the correct equations. We corrected the definition in the revised manuscript.

AR2: EI index defined by Wischemier required breakpoint data. RUSLE used a conversion factor of 1.0667 and RUSLE2 used 1.04 to convert EI index calculated based on 15-min interval data to the EI index based on the breakpoint data. I suggest you use a conversion factor, or at least discuss about it. (Page 3, line 10)

Response-19: As for many countries, it is not possible to obtain breakpoint data for Switzerland. We choose the excellent dataset of Switzerland with 10-minutes measuring interval. Only very few stations (10%) in Europe (Panagos et al., 2015; excluding Switzerland) have a resolution of 10-minutes or shorter. Renard et al. (1997) used the conversion factor of 1.0667 to convert $(EI_{30})_{60}$ to $(EI_{30})_{15}$. Investigations on the use of different measuring intervals (Agnese et al., 2016; Porto, 2016; Panagos et al., 2016a) demonstrate the deviations in EI_{30} by using different measuring intervals. In the present study, the $(EI_{30})_{15}$ is calculated based on 10-min measuring intervals. Even though, Porto (2016) reported that time intervals shorter than 15 minutes are not equivalent to the commonly used $(EI_{30})_{15}$ (15-minutes interval), the proposed mean conversion factor for all investigated stations in southern Italy for 10-minute measuring intervals is very close to 1 (0.97). As the adjustment for 10-minute data would be minimal, and the 87 gauging stations show no heterogeneity in measuring intervals (cf. Panagos et al., 2016a), no conversion factor was applied to the erosive rainfall event erosivity. We will add that discussion on the usage of a conversion factor for the 87 stations in Switzerland to the revised manuscript.

AR2: How do you calculate the RMSE? The values you showed in the result seem to be very low. (Page 5, line 10)

Response-20: Unfortunately, we missed to back-transform the predicted and observed values before we calculated the E_{rms}. We calculated the E_{rms} based on the following equation: $E_{rms} = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(y_i - \hat{y_i})^2}$. They were calculated in R with the code *Erms <- sqrt(mean((y-y_pred)^2))*. The updated E_{rms} will be added to the text and Table 3 in the revised manuscript.

AR2: How can you average the rainfall events at stations in the same unit on a daily scale? (Page 5, line 27)

Response-21: Analogous to Schwertmann et al. (1987), we extracted all the individual erosive rainfall event erosivities (MJ mm ha^{-1} h^{-1}) for each station on a daily scale and averaged them by the same day of the year over the measuring period to long-term mean daily R-factors (MJ mm ha^{-1} h^{-1} d^{-1}).

AR2: Please explain why you use the other dataset to calculate the EDmo? I suppose there is a difference between two datasets (monthly rainfall from 10-min interval data and RhiresM), especially for winter if you discard snow events when 10-min interval data was used in the calculation of rainfall erosivity. If you use two different datasets, the deviation may be introduced. In RUSLE2, although there is data loss in 15-min interval data, monthly erosivity density is calculated based on the same rainfall dataset. (Page 6, line 8)

> **Response-22**: As we answered in our SC2 (doi:10.5194/hess-2016-208-SC2), there are two possibilities to map ED_{mo} for Switzerland. One is to calculate it for the 87 station points based on the measured data. The other way to create such a map is a pixel-by-pixel approach by directly dividing the R-factor map by ready available precipitation maps (according to equation 4). The latter was done also by Panagos et al. (2015), Panagos et al. (2016a), and Panagos et al. (2016b) to map the erosivity density. They used the interpolated R-factors and the interpolated WorldClim-dataset as precipitation variable to calculate the ratio of R/P. A regionalization, following the first method, would require high spatial covariates to interpolate the ED_{mo} values for Switzerland. Thus, we followed the second option since it avoids an additional spatial interpolation step and it makes use of the high spatial resolution precipitation dataset (RhiresM). Among the input data of an average of 457 stations used to create RhiresM are all available automatic tipping bucket gauges of MeteoSwiss, which were also used as input data for the monthly (Schmidt et al., 2016) and annual R-factor calculations (Meusburger et al., 2012).
>
> Indeed, snow is included in RhiresM, but that is the intention of the ratio between rainfall erosivity (generally omitting snow) and precipitation (including snowfall). Snow is also included in the 10-min precipitation data measured at the automatic tipping bucket gauges of MeteoSwiss.

Reply of AR2 to SC2: Erosivity density reflects the erosivity generated by the unit rainfall amount. I insist on using the same dataset when the monthly erosivity density (EDmo) is calculated and RhiresM (including snow) can be used as the monthly precipitation dataset when the monthly rainfall erosivity is calculated, just like they did in RUSLE2. (Referee Comment #7 doi:10.5194/hess-2016-208-RC7)

> **Response-23**: We understand your objection, that there could be a bias by using two different datasets. We compared the mean monthly precipitation sums at the 87 stations ($Precip_{87}$) with the mean monthly precipitation sums based on RhiresM ($Precip_{RhiresM}$) (extracted for the 87 station locations) (attached Figure 4). The Figure shows very high R^2 and regression lines very close to the 1-to-1 line for each month. The long-term precipitation sums for each station and each month can be seen in the attached Table 4.
>
> Still, we recalculated the ED_{mo} for each station based on the monthly interpolated R-factors (R_{mo}) and monthly precipitation data measured at the same station ($Precip_{87}$). Results show that ED_{mo} is generally smaller for $R_{mo}/P_{RhiresM}$ than for $R_{mo87}/Precip_{87}$ although the precipitation sums are similar (Fig. 4). Since the interpolated R-factors are smoothed according to the interpolation routine, the R-factor values at the location of the 87 stations are adopted according to the surrounding values. This fact can be observed by the comparison of the monthly R-factors at the 87 stations (Fig. 5) where R_{87} represents the R-factors calculated from the 10-min data and $R_{Regression\text{-}Kriging}$ represents the extracted values of the R-factor interpolation.
>
> A mapping approach according to the recommendation of the reviewer (interpolation of the erosivity density after the calculation for each station by $R_{mo87}/Precip_{87}$) would also enforce a

smoothing and therefore a lowering to the erosivity density values but outliers like in September at Mathod (MAH, 40.98 MJ ha^{-1} h^{-1}; attached Table 5) cause problems for the interpolation of the stations ED_{mo87}.

To address the concerns of the reviewer, we will add a discussion about the potential differences and biases in ED_{mo87} according to the usage of different datasets. Furthermore, we add a table (attached Table 5) with the ED_{mo87} based on $R_{mo87}/Precip_{87}$ for each station and the enclosed Figure 5 which is a reasonable justification that R-factors are different after the interpolation process, to the supplement material to the supplement material.

AR2: I suppose due to the discarding of the snow events and non-erosive rainfall, erosivity in some winter months for some stations may equal to zeros (as shown in Table 4), which may result in a lower R2 values. (Page 7, line 9)

Response-24: That is absolutely right and is already discussed in the discussion paper (Page 7, line 9-11) and in Panagos et al. (2016b).

AR2: This sentence is difficult to be understood. Averaged root mean square standard error of 1.046 MJ mm ha-1 h-1 month-1 here is different from the mean Erms of 0.61 MJ mm ha-1 h-1 month-1 you showed in Line 6 of this page. (Page 7, line 23)

Response-25: We will revise the sentence in the new version of the manuscript. Here, the E_{rms} is related to the prediction error of the kriging approach in contrast to the upper mentioned E_{rms} of the regression equation.

AR2: should be minimum? Here you mean the maximum monthly rainfall erosivity subtracting the minimum value? Coefficient of variation may be a better index here since it describes the amount of variability relative to the mean. (Page 8, line 18)

Response-26: Yes, it should be “minimum”. It is correct that we subtracted the highest from the lowest R-factor of the twelve months for each grid cell. The coefficient of variation (CV) is a good factor to present the degree of variation at a certain location, but because it is presented in percentage, it does not point to the high extreme R factors. We decided to include the range map because we can illustrate the extremes and map areas that “suffer” most from monthly varying erosivity among a year. As visible in the attached CV map (Fig. 6), those regions, which have high CV (dark brownish colors, the eastern central Alps close to the border of Austria and the northern central Alps) are partial areas with lowest monthly R-factors in most of the months. In addition to the range map, we will add the CV map to the revised manuscript to present the percentage of variation.

AR2: Is the difference significant? Or does it really matter a lot in the estimation of the K and C factors? (Page 26)

Response-27: We would like to refer to Response-16.

Minor Issues:

Page 4, line 5: “Foster instead of Forster?” – corrected it

Page 11, line 10: “You may want to check the references carefully.“ – we checked and revised the references carefully according to the journal style guide.

Page 23: “January?” – Thanks for the note. We changed it to January.

Page 24: “Why you used Jun-Sep as the summer and Oct-Nov as the fall?” – sorry, it was a typo and was changed accordingly

AUTHOR COMMENT TO RC #3

General Remark:

***Anonymous Referee #3* (AR3)**: The article is generally of overall good quality and addresses topics of treat interest for applications involving the soil loss and agricultural productivity. However, in my opinion, a major revision of the manuscript should be performed since some additions and changes are needed:

AR3: 1- The procedure adopted must be described in greater detail (also page 4, line 23 – 26)

> **Response-28**: We would like to refer to Response-3.

AR3: 3 - The meaning of the term "dynamics" in the title must clarified;

> **Response-29**: Referee #1 also suggested a revision of the title and the use of different terms (cf. doi:10.5194/hess-2016-208-RC1; doi:10.5194/hess-2016-208-RC2). We understand that the term “dynamic” is too vague and needs to be defined. As we already stated in Response-1 and Response-7, we changed the title to: “Regionalization of Monthly Rainfall Erosivity Patterns in Switzerland”. We hope this revised title meets the study’s focus on modeling monthly temporal patterns and national spatial patterns for Switzerland.

AR3: 4 – References must be integrated (or, at least, should be specified that Authors refer only to the most recent advancements or to those related to their specific environment)

> **Response-30**: We would like to refer to SC3 (doi:10.5194/hess-2016-208-SC3) and Response-2.

AR3: 5 - The low determination coefficients they found must be commented more deeply, in relation to the practical applicability of the study

> **Response-31**: We would like to refer to SC3 (doi:10.5194/hess-2016-208-SC3) and Response-24.

AR3: 6 - It must be highlighted (beyond the limited increase of employed stations) in methodological terms the progress of this study with respect to the previous one of Meusburger et al. (2012)

> **Response-32**: We would like to refer to Response-12.

AR3: In addition, if the previous items 5 and 6 are not fulfilled, perhaps the manuscript would be better classified as a technical paper.

> **Response-33**: We would like to refer to Response-13.

Major Issues:

AR3: It is not correct ! please, replace er with EI30; R = EI30 = the total storm energy (E) times the maximum 30-min intensity (I30) (in accord with your eq.2) (Page 3, line 3 & 4)

> **Response-34**: We would like to refer to Response-18

AR3: By excluding only one observation out of 87, the validation test has a very low significance. (Page 5, line 2)

> **Response-35**: According to the low number of stations, LOOCV yields more reliable results due to the stability of the method than a data split which reduces and biases the dataset enormously

and is not reproducible (Steyerberg, 2009; James & Witten, 2015; Harrell, 2015). LOOCV is iterated 100 times and as such trains the model to its best.

AR3: Do you have tried with some other distribution ? Do you adopt a normality test ? Box and Cox transformations ? (Page 5, line 3)

Response-36: Yes, we tried other distributions: Log transformation, square root transformation, and reciprocal transformation. Log transformation turned out to be the most suitable for most of the month. Box-Cox-Transformation only results in a better normal transformation for a few months. Our aim was to create one equal and comparable approach for all twelve months and not twelve individual approaches which differ in transformation and regression model. Therefore we had to find a transformation which is valid in all the twelve months and has the ability to easily back-transform the data after interpolation.

We explored the normality by examining the Quantile-Quantile-plots which is often common for regression modeling (Rochen et al., 2012). Hain (2010) states, that "making a decision wheter a sample is normally distributed or not without looking at a graphic makes the investigation not complete." Also, we executed Shapiro-Wilk and Kolmogorov-Smirnov tests which were sometimes in contrast to the Quantile-Quantile-plots what is not unusual (Thode, 2002; Hain, 2010). Shapiro-Wilk tests are often less accurate than Quantile-Quantile-plots (Rykov et al., 2010; Rochen et al., 2012) and biased for small sample size (Rykov et al., 2010).

AR3: A quantitative (pixel-by-pixel and frequency histogram of the differences) could better describe the variations between old and new maps. (Page 5, line 22)

Response-37: The pixel-by-pixel and frequency histogram of the new annual R-factor values (attached Fig. 7) is very similar to the old map (Meusburger et al., 2012). The difference in the count of pixel per R-factor value is resulting from the different spatial resolutions. The comparison of both maps generally shows very similar spatial pattern for Switzerland (attached Fig. 8) but in a different spatial resolution. Due to the different resolution and therefore small-scale differences, a pixel-by-pixel map (difference map) is not informative.

AR3: it would be better to use the same data that allowed to calculate Rmo [for ED_{mo}] (Page 6, line 8)

Response-38: We would like to refer to Response-22 and Response-23.

AR3: Very low values [for R^2]! Are you sure that a model producing R2=0.10 is a sufficiently good model? (Page 7, line 6 & 7)

Response-39: We would like to refer to SC3 (doi:10.5194/hess-2016-208-SC3) and Response-24.

AR3: [normal distribution] according to some goodness-of-fit test ? (Page 7, line 15)

Response-40: We would like to refer to Response-36.

AR3: Please, include Determinarion coefficient R2. Are you sure that, from one month to the next for a generic area, you have no major discontinuities? June, October and December relationships are very similar: please comment this (and other) issue. (Page 20)

Response-41: They are included in Table 3. We have discontinuities as each month is calculated by an individual regression equation. This process treats every month individually without considering the previous or following month. The equations are similar regarding the selected covariates. This is due to the stepwise regression process which checks if the model is getting better or worse by adding/omitting any covariate. Although the equations of June, October and December look similar, the data of RhiresM has temporal variations which show extreme differences in precipitation sums (with a constant dataset of eElevation). In general, the models for these three months show a strong relationship of R-factor to precipitation.

AR3: Col du Grand St-Bernard could be excluded by the whole analyses (Page 21)

Response-42: According to the outliers in Table 3 (original manuscript) it looks like that Col du Grand St-Bernard could be excluded but according to the model tests, the inclusion of the station results in a better model for Jan and Feb. Since both months have low R-factors (cf. Response-24), a prediction is already very hard. In that case, Col du Grand St-Bernard increases the models quality for these months.

Minor Issues:

Page 2, line 12, 13, 15 & 27: – followed the suggestion and deleted it

Page 2, line 20 & 23: – changed it accordingly

Page 2, line 24: “Isn't "seasonality" concept included in "temporal pattern ? Or, perhaps, do you mean "temporal pattern at seasonal (or monthly) scale" ?” – When we are speaking about “seasonality” usually we refer to the temporal scale. In our opinion, this use should become clear by the manuscript.

Page 2, line 32: “delete seasonal” – we think it is worthy to mention the temporal scale here.

Page 3, line 2: “please, in the final version of the manuscript, check symbols (subscript, superscript, etc.)” – done

Page 4, line 2: “Why do you refer to a square cell” – it was expressed incorrectly. We changed it.

Page 4, line 3: “Please, the maximun distance must also been provided” – done

Page 4, line 3, 4 & 5: “the international symbol for year is "y"” – according to the style guide of HESS (http://www.hydrology-and-earth-system-sciences.net/for_authors/manuscript_preparation.html) it should be “a” or “yr”.

Page 5, line 23: “This section is very short. It can be included in the previous section.” – Since the section covers a specific topic not related to mapping it should stay as it is. We didn’t change it.

Page 5, line 30: “you have already said that the data is related to a month. Please, check throughout the manuscript” – In the different sections, we’re switching between seasonal, monthly and daily scales. Therefore, it is better to mention the temporal scale in the different sections.

Page 5, line 30: “Where ? pixel-by-pixel (by using the obtained maps) or with reference to each rain gauge ?” – It is meant pixel-by-pixel.

Page 6, line 16: “33 is the amount in three months ? in the affermative case delete "month-1"” – No, it is not the sum, it is the average of the three months.

Page 5, line 26: “Many other papers deal with seasonality: […]” – we would like to refer to Response-2

Page 7, line 17: “introduce the meaning of H0 (null hypothesis)” – we define it in the revised manuscript

Page 7, line 21: “this is the minimum distance!” – corrected it

Page 7, line 22: “0.61 ?” – We would like to refer to Response-25.

Page 7, line 27: “Temporal patterns” – We prefer to keep it because we think it’s important to mention if the patterns are discussed spatially or temporally

Page 7, line 28; page 9, line 19; page 23 & page 24: “$month^{-1}$” – In our opinion it is correct not to discard the unit “$month^{-1}$” as event R-factors are summed up and averaged on a monthly scale. We do not see the point where $month^{-1}$ is reduced. According to many other studies on monthly R-factors the common unit is MJ mm ha^{-1} h^{-1} $month^{-1}$).

Page 8, line 1: followed the suggestion and deleted it

Page 8, line 18: changed it accordingly

Page 9, line 5 – 10 & 28 – 31: “You can move this sentence in "Conclusion"” – We prefer to keep it at the end of the discussion section.

Page 9, line 15: followed the suggestion and deleted it

Page 9, line 20 & 30: changed it accordingly

Page 10, line 5: – we prefer to keep it

Page 11-16: “References” – We checked and revised the references carefully according to the journals style guide.

Page 23: “values greather than 200 ? (cf. table 4, July, August)” – It will be discussed in section 3.3. of the revised version

Page 24: “average or total amount?” – average

Page 25: “shown values seem total annual values” – The map is the difference of the maximum R_{mo} and minimum R_{mo} which results in the same unit of MJ mm ha^{-1} h^{-1} $month^{-1}$ like it is used for R_{mo}.

Page 28: “A single figure could replace figure 2 and 8. In this graph monthly rainfall (averaged in space and time) could also be included. Obviously, three vertical axes are need.” – Thanks for the recommendation.

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Table 1: Variations in K-factor according to different EI_{30} at 4 stations in Switzerland for the dates 02nd May 2010 and 06th June 2010

	BAS (Basel; Alpine Midland)	GLA (Glarus; Northern Alps)	LUG (Lugano; Southern Alps)	LUZ (Luzern; Northern Alps)
A (t ha^{-1}) (assumed)	1	1	1	1
EI_{30} MJ mm ha^{-1} h^{-1}; 02nd May 2010)	8.5	13.8	70.3	-
EI_{30} (MJ mm ha^{-1} h^{-1}; 06th June 2010)	-	13.1	53.6	142
K (t ha h ha^{-1} MJ^{-1} mm^{-1}; 02nd May 2010)	0.118	0.072	0.014	-
K (t ha h ha^{-1} MJ^{-1} mm^{-1}; 06th June 2010)	-	0.076	0.019	0.007

Table 2:C-factors for Swiss biogeographic regions obtained from the SLRs of a common 3-year crop rotation of corn-winter wheat-winter barley and the percentages of annual rainfall erosivity

Biogeographic region	C-factor
Jura	0.171
Alpine Midland	0.165
Northern Alps	0.144
Eastern Alps	0.141
Southern Alps	0.147
Western Alps	0.186

Table 3: p-values of the Wilcox signed rank test for the percentage of the cumulative R-factors for all biogeographic regions

	Jura	Alpine Midland	Northern Alps	Eastern Alps	Southern Alps	Western Alps
Jura	*	0.002088	2.12E-14	>2.2E-16	>2.2E-16	>2.2E-16
Alpine Midland	0.002088	*	>2.2E-16	>2.2E-16	>2.2E-16	>2.2E-16
Northern Alps	2.12E-14	>2.2E-16	*	>2.2E-16	>2.2E-16	7.016E-09
Eastern Alps	>2.2E-16	>2.2E-16	>2.2E-16	*	>2.2E-16	>2.2E-16
Southern Alps	>2.2E-16	>2.2E-16	>2.2E-16	>2.2E-16	*	0.04391
Western Alps	>2.2E-16	>2.2E-16	7.016E-09	>2.2E-16	0.04391	*

Table 4: Comparison of mean monthly (1-12) precipitation sums derived from the 87 10-minutes gauging station ($Precip_{87}$) and RhiresM ($Precip_{RhiresM}$)

#	acronym	1_{87}	$1_{RhiresM}$	2_{87}	$2_{RhiresM}$	3_{87}	$3_{RhiresM}$	4_{87}	$4_{RhiresM}$	5_{87}	$5_{RhiresM}$	6_{87}	$6_{RhiresM}$
1	ABO	76.2	98.5	86.2	100.1	89.1	103.3	93.1	106.9	125.8	134	149.4	160
2	AIG	62.7	70.7	63.6	67.7	66.0	72.6	70.6	78.4	84.1	96.7	103.0	111.8
3	ALT	55.8	77.9	65.5	78.8	76.3	81.4	89.4	97.8	112.6	123.9	136.0	154.2
4	BAS	39.9	50.5	45.0	48.5	53.2	52.6	65.8	65.5	93.4	91.5	87.4	89.7
5	BER	52.7	65.9	56.2	60.5	70.0	69.7	85.0	84.1	109.6	109.1	99.8	112.4
6	BEZ	71.4	86.1	81.7	79.8	82.4	78.6	68.9	74.7	86.3	89.7	85.8	89.9
7	BUF	32.4	46.9	-	40.9	43.2	48.1	56.1	58.8	72.7	90.1	75.7	91.5
8	BUS	59.6	66.9	65.7	63.9	72.5	68.4	75.4	72	102.5	91	104.0	109.3
9	CDF	94.5	114.4	105.3	108	103.9	106.2	100.6	106.5	126.4	134.1	114.0	131
10	CGI	74.2	94.1	71.7	87.9	64.5	83	68.9	72.3	79.4	85.7	81.2	88
11	CHA	94.0	112.7	110.8	115.1	91.8	104.9	83.1	90.2	100.0	110.2	101.2	119.5
12	CHU	41.5	53.7	52.5	54.6	55.1	52.2	53.5	54.6	65.5	76.6	91.4	97.9
13	CHZ	36.6	60.6	38.3	62.7	56.4	68.6	66.0	89.1	94.3	130.4	102.5	149.4
14	CIM	43.1	73.8	36.1	75.9	56.0	105.7	126.2	170.7	175.4	210.1	198.3	181.8
15	COM	55.5	69	48.3	62.7	53.8	74.8	111.1	123	133.5	155	133.5	135
16	COV	-	58.8	-	46.9	-	61.4	-	79.1	83.8	116.1	105.2	118.3
17	DAV	51.5	68.7	64.4	63.8	57.6	62.3	61.3	57.5	83.7	91.3	130.3	122.9
18	DIS	55.1	65.4	59.5	62.8	62.2	67.9	86.0	86.9	107.3	115.4	108.5	108.6
19	DOL	142.2	164.4	149.0	150	144.9	146.7	128.8	134.3	141.4	150.2	142.5	147
20	ENG	72.8	125.8	88.5	133.1	103.5	144.7	120.1	155.5	156.0	187.4	181.2	208.9
21	EVO	42.7	63.5	40.7	60.6	42.1	71	56.2	78.3	76.5	103.3	80.7	90.7
22	FAH	58.6	75.9	66.9	74	76.8	81.3	83.4	89.5	107.1	117	99.9	106.3
23	FRE	93.1	142.4	102.4	127.7	96.6	123.9	94.5	118.7	108.2	137.6	111.4	140.9
24	GEN	40.2	82.6	37.6	79.7	73.2	111.3	127.3	178.2	132.5	219.3	90.5	186.7
25	GLA	72.2	86.6	89.5	89.6	106.0	93.2	101.5	102.4	126.9	135.7	162.9	168.2
26	GOE	60.2	79.2	65.0	76.7	72.0	75.8	77.8	78.5	94.0	103.5	95.7	112.5
27	GRH	159.4	195.1	184.1	180.5	180.5	183.2	155.5	190.4	158.0	165.2	132.9	156.4

28	GSB	210.4	0	229.5	0	206.9	0	242.4	0	195.3	0	158.4	0
29	GUE	104.9	133.2	122.5	131.1	115.0	129.5	117.2	145.3	126.0	136.6	122.7	126.3
30	GUT	44.8	54.7	55.3	56.4	66.1	56.9	70.0	73.4	94.1	99.8	104.3	107.9
31	GVE	65.4	75.5	61.4	70.8	62.8	72.4	69.2	67.4	72.6	75.6	79.5	86.1
32	HIR	44.5	73.7	33.6	66.1	54.5	80.9	128.2	133.4	159.8	179.6	170.5	169.8
33	HOD	54.3	69.4	60.1	69.3	89.9	75.5	82.6	93.2	122.3	122.7	119.6	139.2
34	HOE	70.4	101.3	85.4	101.1	194.4	114	110.6	129	140.0	157.6	125.7	182.3
35	INT	61.0	70.2	72.1	74.4	74.5	73.7	92.0	85.4	115.9	114.4	131.7	134.1
36	JON	63.4	75.7	73.2	78.4	95.8	87.5	94.6	106.7	142.0	144.5	153.9	168.9
37	KAP	63.9	75.7	63.5	71.8	89.0	72.1	70.6	75.6	91.3	93.6	84.1	104.1
38	KLO	39.0	66.3	52.4	65.6	86.6	67.2	76.9	76	116.5	99.4	95.7	107.2
39	KRD	50.8	73.4	56.7	71.4	87.4	84	76.8	102.1	116.3	133.2	108.8	135.9
40	KRL	54.2	69	60.7	64.7	96.3	75.7	86.8	91.7	117.9	119.7	102.1	125.2
41	LAT	60.8	80.3	59.2	76.2	89.1	77.1	75.4	80.6	102.3	103.6	86.1	112.7
42	LAU	69.3	74.2	74.2	72.3	101.0	75.4	81.3	84.7	106.4	106.6	93.3	119.3
43	LEI	79.2	93.1	84.1	84.5	82.4	84.4	69.4	77.2	88.1	94.1	79.7	94.1
44	LUG	65.1	78.8	53.3	69.3	65.8	100	153.7	153.3	168.4	196.9	172.4	177.1
45	LUZ	42.4	55	54.2	57.8	75.9	66.5	93.5	88.4	125.4	127.1	160.1	155.1
46	MAG	70.2	80.3	59.7	71.3	74.4	103.1	177.6	169.6	201.3	206.1	186.2	190
47	MAH	-	67	43.0	59.9	43.8	60	49.9	59.8	53.5	79.4	55.3	85.4
48	MTO	60.2	72.8	60.5	75.1	104.3	80.1	101.3	92.3	124.9	126.7	126.2	143.9
49	MUB	47.7	70.9	54.5	67.5	64.3	74.3	76.9	84.9	95.3	106.3	104.8	110.6
50	MVE	92.5	112.4	99.5	111.5	71.9	87.7	63.8	81.4	80.8	98.1	81.3	107.4
51	NAP	82.6	97.7	109.8	98.7	120.4	106.8	126.2	129.3	177.3	162.6	177.2	188.7
52	NEU	61.9	70.1	63.3	65.6	65.6	65.9	68.8	64.9	78.8	81	87.0	86.6
53	OTL	69.1	76.8	58.1	70.3	82.0	103.4	175.7	166.8	185.1	204.8	195.2	187.7
54	PAY	45.2	59.7	43.9	53.6	56.5	62.7	67.3	69.1	81.3	86.5	87.0	93.6
55	PIL	182.3	108.5	-	111.5	244.1	124.8	228.3	150.8	147.6	161.1	168.9	192.3
56	PIO	65.2	81.4	61.8	80.5	69.3	91.7	125.2	135.1	147.2	164.5	151.4	142.4
57	PLF	50.7	71.7	52.5	68.7	71.5	84.3	89.0	105.2	138.1	145.1	144.7	150.3
58	PSI	76.0	86.1	80.2	79.8	84.9	78.6	76.0	74.7	101.4	89.7	88.0	89.9

59	PUY	69.3	83.5	63.1	73.4	74.0	78	90.6	85.6	106.4	107.3	109.7	112.6
60	REH	51.9	66.5	62.0	66.5	72.5	69.8	78.8	83	111.9	111.6	114.3	118
61	ROB	47.8	60.4	33.0	41.4	46.5	58.2	80.4	85.4	92.8	115.9	115.0	115.3
62	ROE	156.4	135.7	-	136	138.7	156.1	232.3	223.5	265.1	250.5	207.5	212.4
63	ROO	42.4	68.8	49.0	69.7	82.0	84.2	85.4	109.8	122.8	147.8	143.7	177.6
64	RUE	45.5	63.1	53.1	61	64.3	67.9	79.9	82.9	105.0	109.3	102.4	113.3
65	SAE	-	162.2	-	157.2	278.5	170	206.6	183.2	195.3	206.8	229.0	250.1
66	SAM	23.3	38.9	19.2	30.2	22.8	37	37.9	49.2	61.9	81.3	88.3	94.7
67	SBE	83.9	88.6	62.9	74	80.9	97.6	157.1	152.7	177.0	200.4	181.7	185.5
68	SBO	74.5	86.8	65.0	83.5	69.6	103.3	156.8	150.7	160.7	184.4	138.6	150.7
69	SCU	30.3	36.6	35.0	34.1	38.2	35	40.2	38	51.5	63.8	82.1	78.4
70	SEM	42.5	59.1	47.1	59	76.8	65.6	78.8	82.1	116.0	118.2	123.1	137.6
71	SHA	58.7	69.6	61.5	63.9	66.4	62.4	63.9	68.3	84.3	86.2	92.9	94.6
72	SHE	77.4	86.2	81.9	86	123.5	93.7	108.8	112.2	150.5	156.9	162.9	161.9
73	SIO	45.1	46.2	49.8	46.6	38.8	37.9	37.5	32	46.6	42.6	54.6	48.7
74	SMA	52.7	66.6	66.8	69.2	79.5	72	82.7	86.8	123.9	117.2	128.0	128.3
75	STG	46.5	64.2	58.7	67.6	86.7	77.5	100.9	102.7	138.8	137.4	153.7	151.9
76	SUR	48.1	70.4	51.9	67.2	83.9	70.6	79.6	82.9	112.6	107.8	112.3	120.5
77	TAE	64.3	78.9	76.5	79	88.5	83.7	90.5	92.2	123.7	123.5	125.7	131.5
78	ULR	86.7	131.8	93.0	142.7	92.2	145	96.1	148.8	117.4	150.9	99.0	133.7
79	VAD	33.4	0	39.5	0	57.6	0	58.1	0	82.8	0	112.8	0
80	VIS	45.5	47.3	42.6	45.8	43.2	49.2	45.9	43.8	51.7	52.6	44.8	47
81	WAE	68.2	78	80.3	78.4	97.9	84.3	99.9	98.7	130.5	134.3	147.4	150.5
82	WEE	64.8	124.1	65.5	127.7	93.2	144.1	95.9	156.4	127.8	196.1	144.5	238.9
83	WFJ	-	106.7	-	106	-	94.6	85.8	85	105.2	124.7	160.4	176.3
84	WIL	64.9	74.4	73.3	75.1	99.4	81.9	87.1	93.5	130.2	128.7	132.4	136.6
85	WSA	49.3	74.2	52.4	71.1	84.6	80.4	75.8	92.3	112.6	113	107.6	126.1
86	WYN	70.4	79.2	76.1	73	80.3	73.5	79.3	75.2	94.7	101	103.1	107.3
87	ZER	32.0	52.2	34.6	51.9	30.8	53.3	43.8	57.3	71.5	84.1	70.6	85.1

#	acronym	7_{87}	7_{RhiresM}	8_{87}	8_{RhiresM}	9_{87}	9_{RhiresM}	10_{87}	10_{RhiresM}	11_{87}	11_{RhiresM}	12_{87}	12_{RhiresM}
1	ABO	164.1	166.5	156.5	168.3	104.7	105.8	80.3	90.9	86.0	110.8	101.8	122.8
2	AIG	118.3	112.4	105.8	116.7	86.9	83.9	74.1	79.7	71.8	85.3	77.8	85.7
3	ALT	146.3	157.7	168.8	159.7	110.9	107.2	73.1	85.5	89.8	96	81.9	94.1
4	BAS	92.8	89.8	86.4	87.8	76.7	69.2	72.2	64.6	63.6	64.1	60.1	64.3
5	BER	110.4	107	118.9	115.4	94.9	90	84.5	80.1	74.8	81.2	71.4	78.2
6	BEZ	94.2	92.8	85.7	95.3	68.3	74.6	79.3	76	82.5	89.7	94.7	99.5
7	BUF	108.0	105.7	112.5	111.4	54.9	79.6	82.7	76.7	77.4	73.8	36.0	52.1
8	BUS	109.3	104.5	108.3	110.6	82.3	85.4	79.5	76.3	74.0	83.1	85.1	83.2
9	CDF	126.0	126.8	142.7	132.4	125.4	115	115.5	109.3	114.8	124.8	125.0	138.5
10	CGI	81.3	80	83.7	87	94.2	89.8	96.1	95.7	89.2	102.3	90.2	115.2
11	CHA	106.7	118.5	124.9	124.1	95.8	99.9	91.8	97.3	94.7	115.9	109.4	137.4
12	CHU	113.4	103.6	114.8	114.5	78.8	81.7	58.0	59	74.1	72.5	54.0	62.7
13	CHZ	102.8	141.8	100.7	148.1	77.8	100	61.7	77.5	53.3	79.2	42.9	77.2
14	CIM	154.2	178.1	175.1	199.2	189.0	239.8	160.3	207	125.5	171.9	60.0	72.2
15	COM	114.8	131.8	149.5	161.6	130.3	149.4	120.6	136.2	126.9	132.9	71.4	66
16	COV	106.8	116.3	104.9	128.3	79.2	104.5	69.5	96.1	-	103.5	-	59.3
17	DAV	142.1	125.2	153.7	133.3	92.8	89.7	63.7	62.5	76.5	72.7	63.3	73.2
18	DIS	109.6	106	121.9	121.6	107.2	109.7	82.6	92.3	101.7	102.7	68.3	70.7
19	DOL	143.7	135.9	142.5	145.8	157.6	143.8	173.8	155.5	161.5	174.8	183.6	198.7
20	ENG	202.7	221.5	193.4	214.4	132.8	141.8	94.5	126.6	104.3	145.8	103.0	145.3
21	EVO	88.0	99.5	84.9	98.6	61.3	70.2	50.7	72.1	53.4	72.4	51.3	75.2
22	FAH	93.6	97	109.6	111.3	96.5	91.4	97.6	92.7	89.6	98.4	88.7	96.5
23	FRE	118.0	125.3	123.5	140.6	110.2	129.8	116.5	131.1	105.5	154.6	118.7	159.2
24	GEN	93.7	168.2	125.8	171.4	127.1	193.2	122.5	170.9	116.6	173.7	60.8	97.9
25	GLA	203.4	183.2	195.3	182.3	133.5	122.6	93.4	95.5	107.4	107.2	106.1	113.6
26	GOE	108.4	108.7	110.5	113.8	76.8	85.3	76.9	79.6	67.9	89.5	80.6	99.4
27	GRH	125.7	151	143.3	149.7	138.2	137.1	119.7	138.6	174.9	196	160.1	204.2
28	GSB	143.7	0	139.7	0	154.2	0	213.4	0	237.1	0	293.4	0
29	GUE	120.0	111.6	133.1	131.8	116.0	110.4	85.0	107.2	112.2	149.8	121.0	137.1

30	GUT	111.9	108.6	96.7	97.9	81.8	77.4	69.8	65.1	69.6	74	73.3	73.1
31	GVE	79.2	75.7	80.4	82	98.1	89	95.6	88.9	82.0	95.3	81.2	91.4
32	HIR	168.4	164.8	189.0	182.1	185.8	175.3	181.7	156.5	172.2	147.1	65.0	76.6
33	HOD	140.4	134.9	145.0	144.8	88.6	95.5	79.8	80.9	69.1	83.4	62.1	84.9
34	HOE	161.7	170.5	206.4	179.6	96.0	133.1	80.5	106.6	60.9	118.7	98.6	123.2
35	INT	146.7	131.5	142.6	140.3	98.6	85.4	73.3	72.9	80.7	85.6	87.0	86.6
36	JON	169.5	164.1	175.0	175.2	136.3	122	94.5	92.3	94.6	97.9	81.1	97.9
37	KAP	111.5	97.2	131.9	111	67.4	87	99.0	83.2	83.2	85.9	82.8	94.5
38	KLO	141.0	106.2	143.0	108.5	68.3	78.6	83.7	73.3	39.9	81.3	70.0	82.3
39	KRD	134.4	133.7	138.5	133.1	91.3	99.6	86.3	88.5	70.4	90.2	61.6	88.5
40	KRL	137.3	121.7	145.3	124.7	91.8	93.8	89.3	84.7	74.9	84.6	67.3	83.4
41	LAT	124.1	107.4	132.9	117.5	84.9	89.5	94.5	82	70.5	87.7	67.2	99.2
42	LAU	147.3	115	134.7	121.5	84.4	87.8	91.1	78.7	76.0	85.8	74.4	90.9
43	LEI	91.8	96.1	88.2	97.1	72.7	75.9	83.8	80.2	81.4	94.6	102.8	111.7
44	LUG	160.7	146.5	151.6	175.4	175.7	173	135.9	154.9	131.6	151.2	76.0	79
45	LUZ	165.8	147.8	158.6	151.6	109.1	97.4	76.7	72.8	73.2	77.7	69.9	68.8
46	MAG	156.4	165.8	173.5	191.3	208.4	198.7	184.6	177.9	190.8	172.5	87.0	74.2
47	MAH	66.5	83	77.3	87.6	58.3	78.7	74.0	72.7	63.2	72.4	-	79.9
48	MTO	132.6	139	143.4	144.4	109.2	101.6	93.8	80.6	81.9	90	71.5	92.7
49	MUB	105.0	106.6	108.4	114.6	86.2	90.7	82.0	84.9	72.8	84.8	74.9	87.8
50	MVE	79.5	110.2	87.0	117.9	60.0	73.4	62.7	76.7	73.4	102.2	106.6	133.7
51	NAP	192.6	171.7	183.1	175.1	137.7	124.5	112.8	102.7	102.6	115.4	109.3	118.2
52	NEU	88.1	83	106.1	99.9	86.6	83.6	86.0	75.7	72.2	78.8	85.7	88.9
53	OTL	169.2	175.7	194.7	201	211.4	219.3	180.2	185.2	172.9	171.5	88.9	71.6
54	PAY	86.8	87	91.5	98.9	79.3	77.4	83.0	79.5	59.5	72.2	60.4	68.8
55	PIL	164.5	182.3	170.9	192.5	120.0	124.7	103.8	98.2	177.9	128.7	222.1	130.2
56	PIO	124.4	128.6	138.6	145.6	154.7	151.8	139.8	152.2	139.1	150.2	76.9	83
57	PLF	150.0	141.4	151.9	150.8	114.8	111.7	104.7	99.1	75.4	92.3	73.1	87.9
58	PSI	107.6	92.8	98.0	95.3	76.6	74.6	87.7	76	85.0	89.7	97.8	99.5
59	PUY	96.5	100.3	114.1	115.8	109.7	101.7	107.9	98.8	91.2	99.6	86.1	97.1
60	REH	120.3	114.5	106.5	117.6	82.3	87.5	77.3	76.3	73.5	85	76.1	84.4

61	ROB	112.8	113.8	105.6	114.8	107.8	107.3	118.2	108.6	112.2	111.4	67.7	61.9
62	ROE	164.2	174.8	192.6	208.4	272.2	222.2	267.2	242	257.4	239.1	134.2	136.5
63	ROO	172.4	168.1	181.4	176.5	102.2	115.2	80.8	86.2	66.2	89.2	57.4	84.1
64	RUE	114.6	110	110.6	114.7	88.8	85.8	77.5	76.4	70.3	80.5	68.1	81.2
65	SAE	292.9	262.1	274.4	258.6	214.5	185.7	184.1	145.5	231.3	167.7	286.3	194.2
66	SAM	92.0	95.1	92.6	105.7	69.6	80.4	65.7	71.7	66.6	73.5	34.4	40.2
67	SBE	180.0	179.3	181.5	196.5	185.1	194	172.5	174.7	180.2	161.8	97.6	91.8
68	SBO	114.1	126.1	136.8	154.3	180.6	157.6	148.7	153.2	158.7	159.2	84.3	81.7
69	SCU	96.6	88.4	102.4	100.6	60.1	64.7	63.2	57.1	64.1	58.8	44.1	42.5
70	SEM	158.0	127.3	138.7	136.2	91.1	89.7	76.9	72.7	60.5	74	53.9	71
71	SHA	98.2	93.8	87.1	94	69.6	66.2	71.8	70.9	62.5	75.2	75.8	86.2
72	SHE	213.8	158.8	188.0	156.6	120.0	108.2	94.6	94.7	92.0	105.2	85.8	103.5
73	SIO	62.7	50	58.5	53.5	44.1	37	44.3	44.1	50.1	52.8	62.4	61.9
74	SMA	127.2	124.5	123.8	130.6	93.4	93.1	83.2	77.7	75.6	85.4	81.7	86.9
75	STG	175.3	150.4	164.3	151.2	129.3	115.6	91.6	81	86.8	90.6	77.9	83.5
76	SUR	141.3	116	137.7	121.5	86.1	85.6	82.4	75.5	61.9	80.8	54.5	84.8
77	TAE	126.6	121.3	123.2	125.4	95.1	100	88.0	84.7	82.0	95.1	90.3	100.2
78	ULR	86.7	127.6	102.2	135.1	98.6	119.8	93.5	125.2	119.3	162.8	110.3	160.1
79	VAD	140.8	0	145.3	0	95.5	0	60.7	0	60.4	0	50.4	0
80	VIS	45.2	40.4	48.7	47.4	41.0	33.9	48.1	50.5	52.7	67.3	59.7	63.7
81	WAE	161.2	148	169.0	160.1	125.2	107.5	96.2	86.4	96.7	94.4	101.1	96.9
82	WEE	188.5	245.8	204.7	254.9	121.8	168.3	85.1	133.7	89.4	144.5	78.0	146
83	WFJ	184.8	182.6	198.8	194.1	116.0	122.2	78.9	81.7	98.1	112	-	121
84	WIL	128.7	128.6	137.3	132.5	108.2	101.5	75.8	83.5	78.3	91.9	86.7	93.6
85	WSA	151.1	116.6	130.1	122.6	82.9	89.7	78.3	83.2	63.3	86.7	57.0	88
86	WYN	115.7	104.4	126.6	111.5	98.0	87.4	90.2	81.1	77.9	83.6	89.7	96.7
87	ZER	56.9	72.2	66.2	85.7	55.1	60.4	50.4	64.3	57.9	81.1	43.8	63.2

Table 5: Monthly Erosivity Density ED_{mo87} (MJ ha^{-1} h^{-1}) for all 87 stations in Switzerland based on the ratio of $R_{mo87}/Precip_{mo87}$

#	acronym	station	y-coordinate (CH1903)	x-coordinate (CH1903)	1	2	3	4	5	6	7	8	9	10	11	12
1	ABO	Adelboden	609400	148975	0.31	0.32	1.38	2.00	1.00	0.24	0.29	1.99	1.99	0.10	0.65	0.30
2	AIG	Aigle	560400	130713	0.90	0.72	0.64	2.56	1.57	0.34	0.96	4.08	4.08	0.27	1.01	0.79
3	ALT	Altdorf	690174	193558	0.56	0.51	0.52	2.83	0.28	0.18	1.44	3.07	3.07	0.55	0.52	0.26
4	BAS	Basel/Binningen	610911	265600	0.47	4.07	0.74	1.66	0.29	0.18	7.06	4.18	4.18	0.71	0.54	0.53
5	BER	Bern/Zollikofen	601929	204409	2.23	3.57	0.98	0.82	2.18	0.36	5.93	1.23	1.23	0.91	0.45	0.46
6	BEZ	Beznau	659808	267693	2.99	2.81	1.03	0.51	0.30	0.47	12.87	0.80	0.80	1.09	0.21	0.33
7	BUF	Buffalora	816494	170225	9.77	*	4.33	0.66	0.31	1.79	8.96	0.29	0.29	0.76	0.35	0.74
8	BUS	Buchs/Aarau	648389	248365	4.27	2.53	3.21	0.40	0.23	1.75	8.00	0.42	0.42	0.53	0.38	0.61
9	CDF	La Chaux-de-Fonds	550923	214893	0.73	0.88	2.65	0.46	0.37	2.85	1.86	0.16	0.16	0.44	0.24	0.35
10	CGI	Nyon/Changins	506880	139573	0.45	0.80	7.69	0.75	1.66	3.45	1.91	0.27	0.27	0.22	0.34	1.76
11	CHA	Chasseral	570842	220154	0.31	0.28	3.41	0.77	1.99	0.86	0.51	0.31	0.31	0.47	0.34	2.58
12	CHU	Chur	759471	193157	0.86	0.70	1.57	1.70	3.40	0.97	0.07	0.34	0.34	1.79	3.47	8.04
13	CHZ	Cham	677825	226880	0.95	1.26	2.71	3.57	1.75	0.30	0.20	0.76	0.76	0.82	4.43	12.63
14	CIM	Cimetta	704433	117452	0.67	2.07	0.74	3.25	0.50	0.19	0.18	1.14	1.14	0.59	1.93	2.88
15	COM	Acquarossa/Comprovasco	714998	146440	0.45	0.99	0.56	2.57	0.36	0.10	0.45	1.35	1.35	1.61	1.93	1.02
16	COV	Piz Corvatsch	783146	143519	*	*	*	*	0.34	0.23	1.51	2.69	2.69	3.74	*	*
17	DAV	Davos	783514	187457	0.55	0.70	0.59	1.81	0.38	0.21	2.88	0.98	0.98	6.56	1.13	0.97
18	DIS	Disentis/Sedrun	708188	173789	1.23	2.82	1.15	1.17	0.23	0.43	4.69	0.50	0.50	5.22	0.61	0.78
19	DOL	La Dôle	497061	142362	0.81	1.38	0.50	0.37	0.18	0.91	2.68	0.22	0.22	1.73	0.22	0.17
20	ENG	Engelberg	674156	186097	3.73	3.77	0.15	0.38	0.20	1.14	0.73	0.18	0.18	1.84	0.30	0.21
21	EVO	Evolène / Villa	605415	106740	4.02	10.41	0.58	1.49	0.50	4.59	0.56	0.62	0.62	4.87	0.34	0.69
22	FAH	Fahy	562458	252676	1.69	2.27	0.13	0.06	0.39	2.76	0.38	0.39	0.39	0.73	1.57	0.51
23	FRE	Bullet / La Fraz	534221	188081	0.42	0.64	0.62	1.39	1.41	0.39	0.29	1.14	1.14	0.33	0.27	1.05
24	GEN	Monte Generoso	722250	87300	0.65	1.64	0.29	1.05	1.38	4.07	0.30	1.65	1.65	0.57	0.33	4.07
25	GLA	Glarus	723752	210567	0.41	0.69	0.11	5.60	1.26	0.19	0.29	2.24	2.24	1.31	1.64	3.76
26	GOE	Goesgen	640417	245937	0.28	0.46	0.74	5.11	1.72	0.20	0.95	7.68	7.68	3.09	3.76	5.79
27	GRH	Grimsel Hospiz	668583	158215	0.13	0.16	0.89	5.18	0.52	0.09	1.93	7.45	7.45	4.90	2.27	1.09
28	GSB	Col du Grand St-Bernard	579200	79720	0.21	0.14	0.65	3.54	0.22	0.10	5.17	9.04	9.04	3.80	1.80	0.21

29	GUE	Guetsch ob Andermatt	690140	167590	0.24	0.26	1.77	9.57	0.27	0.19	6.42	9.65	9.65	10.00	1.35	0.36
30	GUT	Guettingen	738419	273960	1.76	1.18	1.12	4.68	0.22	0.31	7.52	5.04	5.04	10.80	0.81	0.48
31	GVE	Genève-Cointrin	498903	122624	1.76	3.31	0.63	4.77	0.23	1.95	14.23	3.21	3.21	12.09	0.40	1.24
32	HIR	Hinterrhein	733900	153980	14.95	5.78	0.54	0.22	0.40	2.04	6.38	0.32	0.32	1.89	0.13	0.70
33	HOD	Hochtorf	663850	225520	3.29	2.57	0.32	0.22	0.98	2.17	2.80	0.16	0.16	3.02	0.34	2.83
34	HOE	Hoernli	713515	247755	2.09	1.25	0.14	0.35	1.51	2.27	2.38	0.08	0.08	0.82	0.16	2.43
35	INT	Interlaken	633019	169093	0.82	1.23	0.27	0.53	1.85	0.83	0.55	0.35	0.35	0.11	0.43	2.46
36	JON	Jona	706760	231280	0.86	0.72	0.34	0.28	2.16	0.36	24.96	0.22	0.22	0.23	0.57	0.75
37	KAP	Kappelen	588926	213323	0.58	0.53	0.48	1.08	5.18	0.24	1.25	0.51	0.51	1.43	3.96	0.40
38	KLO	Zuerich/Kloten	682706	259337	0.39	0.51	1.62	3.04	3.31	0.17	0.47	1.78	1.78	0.17	5.34	0.22
39	KRD	Krauchtal Dietersweg	611299	206530	0.18	1.80	1.07	5.52	1.59	0.23	1.31	1.61	1.61	0.20	3.96	0.44
40	KRL	Krauchtal Lindenfeld	609041	205426	0.74	0.76	1.47	3.09	2.06	0.18	0.95	1.65	1.65	0.74	2.93	0.27
41	LAT	Langenthal	626820	231515	0.97	1.04	1.64	1.67	0.57	0.35	1.53	0.74	0.74	1.69	0.92	0.65
42	LAU	Langnau	640360	231200	2.43	2.52	1.25	0.69	0.20	0.57	2.55	0.43	0.43	1.00	0.84	0.49
43	LEI	Leibstadt	656378	272111	2.14	1.12	0.80	0.71	0.15	1.95	3.33	0.33	0.33	0.63	0.33	1.10
44	LUG	Lugano	717873	95884	3.92	3.01	1.33	0.40	0.20	1.26	0.35	0.17	0.17	0.46	0.11	3.72
45	LUZ	Luzern	665540	209848	3.22	4.60	0.40	0.27	0.33	2.38	0.57	0.08	0.08	0.79	0.58	2.69
46	MAG	Magadino/Cadenazzo	715475	113162	2.13	1.85	0.62	0.13	0.96	2.06	1.39	0.13	0.13	0.14	0.17	3.42
47	MAH	Mathod	534870	178070	0.17	0.82	1.38	0.85	5.63	2.16	40.98	0.99	0.99	0.10	0.52	0.68
48	MTO	Moechaltorf	696925	240800	0.37	0.83	0.70	0.58	2.24	0.46	0.18	0.77	0.77	0.11	0.52	0.90
49	MUB	Mueleberg	587788	202478	0.33	0.72	0.83	1.14	2.00	0.35	0.17	1.87	1.87	0.22	2.88	0.46
50	MVE	Montana	601706	127482	0.23	0.15	3.22	2.72	1.04	0.23	0.51	3.86	3.86	0.71	3.22	0.34
51	NAP	Napf	638132	206078	0.21	0.29	1.78	1.84	0.22	0.20	0.31	2.05	2.05	1.59	2.92	0.20
52	NEU	Neuchâtel	563150	205600	0.47	0.38	4.67	2.57	0.41	0.19	1.40	0.73	0.73	3.73	5.57	0.13
53	OTL	Locarno/Monti	704160	114350	1.03	0.46	3.65	0.40	0.08	0.17	1.09	0.14	0.14	1.98	0.62	0.36
54	PAY	Payerne	562127	184612	3.40	0.85	4.35	0.67	0.94	0.47	2.27	0.16	0.16	2.28	1.15	0.52
55	PIL	Pilatus	661910	203410	1.24	*	0.78	0.12	0.25	0.50	1.38	0.36	0.36	1.03	0.23	0.80
56	PIO	Piotta	695888	152261	3.48	1.59	1.18	0.28	0.38	1.46	1.28	0.31	0.31	0.21	0.28	3.06
57	PLF	Plaffeien	586808	177400	5.09	2.76	1.23	0.12	0.88	1.44	0.44	0.27	0.27	0.20	0.56	6.57
58	PSI	PSI Wuerenlingen	659540	265600	2.41	1.73	0.18	1.31	1.26	2.87	0.31	0.64	0.64	0.16	0.54	2.02
59	PUY	Pully	540811	151514	0.96	1.98	0.43	0.38	2.51	0.89	0.27	0.86	0.86	0.23	0.72	0.72

60	REH	Zuerich/Affoltern	681428	253545	0.96	0.58	0.41	0.29	3.79	0.80	0.18	1.67	1.67	0.30	0.96	0.79
61	ROB	Poschiavo/Robbia	801850	136180	0.48	1.87	0.76	1.34	3.79	0.18	0.14	2.30	2.30	0.28	0.75	0.29
62	ROE	Robièi	682587	144091	0.17	*	0.85	0.28	1.16	0.09	0.15	2.32	2.32	0.13	0.26	0.11
63	ROO	Root	672060	218910	0.83	0.40	2.60	0.92	0.37	0.30	0.24	1.26	1.26	1.09	1.61	0.51
64	RUE	Ruenenberg	633246	253845	0.84	3.22	6.02	1.50	0.21	0.19	0.72	3.65	3.65	3.44	5.43	0.47
65	SAE	Saentis	744200	234920	*	*	0.85	0.35	0.21	0.17	0.77	0.39	0.39	1.12	0.45	0.13
66	SAM	Samedan	787210	155700	1.25	0.49	4.79	1.84	0.37	0.47	2.58	1.77	1.77	1.94	0.77	1.05
67	SBE	S. Bernardino	734112	147296	0.76	0.31	0.58	0.21	0.18	0.81	0.97	0.19	0.19	0.38	0.53	1.15
68	SBO	Stabio	716034	77964	2.53	0.52	0.63	0.28	0.18	1.54	0.87	0.20	0.20	0.28	0.42	2.43
69	SCU	Scuol	817135	186393	6.18	3.08	1.00	0.18	0.59	5.00	0.62	0.28	0.28	0.41	0.14	6.14
70	SEM	Sempach	656880	219360	1.79	5.53	0.11	0.75	1.08	2.51	0.21	0.22	0.22	0.31	0.26	6.83
71	SHA	Schaffhausen	688698	282796	1.01	4.01	0.32	1.13	2.54	0.62	0.41	0.51	0.51	0.35	0.19	2.28
72	SHE	Schoefheim	644500	200940	0.56	2.67	0.14	1.31	1.93	0.45	0.14	1.17	1.17	0.23	0.19	1.00
73	SIO	Sion	591630	118575	0.96	3.58	0.46	2.67	4.33	0.47	0.68	5.33	5.33	1.73	0.72	0.50
74	SMA	Zuerich/Fluntern	685117	248061	0.64	0.64	0.60	1.70	0.97	0.25	0.27	2.77	2.77	0.60	2.22	0.46
75	STG	St. Gallen	747861	254586	0.18	2.91	0.54	2.97	0.33	0.25	0.14	2.61	2.61	2.24	2.87	0.06
76	SUR	Sursee	649930	225040	0.18	0.24	1.17	2.27	0.35	0.34	0.36	1.22	1.22	4.36	2.95	3.71
77	TAE	Aadorf/Taenikon	710514	259821	0.27	0.11	0.60	1.52	0.39	0.28	0.48	0.75	0.75	8.88	1.35	0.22
78	ULR	Ulrichen	666740	150760	0.69	0.06	1.84	1.40	0.12	0.33	0.80	0.38	0.38	4.17	0.23	0.75
79	VAD	Vaduz	757718	221696	1.16	1.88	0.51	2.38	0.13	0.74	0.47	0.30	0.30	1.67	0.39	1.19
80	VIS	Visp	631149	128020	2.21	3.39	1.01	3.26	0.66	1.61	1.14	0.75	0.75	0.85	0.27	0.74
81	WAE	Waedenswil	693849	230708	1.15	8.03	0.20	0.05	0.33	1.35	0.17	0.15	0.15	0.55	0.21	0.43
82	WEE	Weesen	724969	221377	0.98	13.71	0.18	0.69	1.11	0.67	0.15	0.21	0.21	0.36	0.18	0.52
83	WFJ	Weissfluhjoch	780615	189635	*	*	*	0.58	3.81	0.46	0.25	0.18	0.18	0.22	0.26	*
84	WIL	Will	722100	256700	0.85	9.50	0.19	0.30	3.69	0.44	0.16	0.67	0.67	0.63	0.60	0.41
85	WSA	Wilisau	642650	220780	1.17	15.09	0.25	0.89	3.16	0.35	0.75	1.14	1.14	0.41	0.79	0.51
86	WYN	Wynau	626400	233850	0.32	9.33	0.56	1.19	1.98	0.42	0.31	1.67	1.67	0.19	0.31	0.77
87	ZER	Zermatt	624350	97566	0.84	9.64	4.80	3.14	0.80	0.37	1.02	1.52	1.52	1.11	1.78	0.85

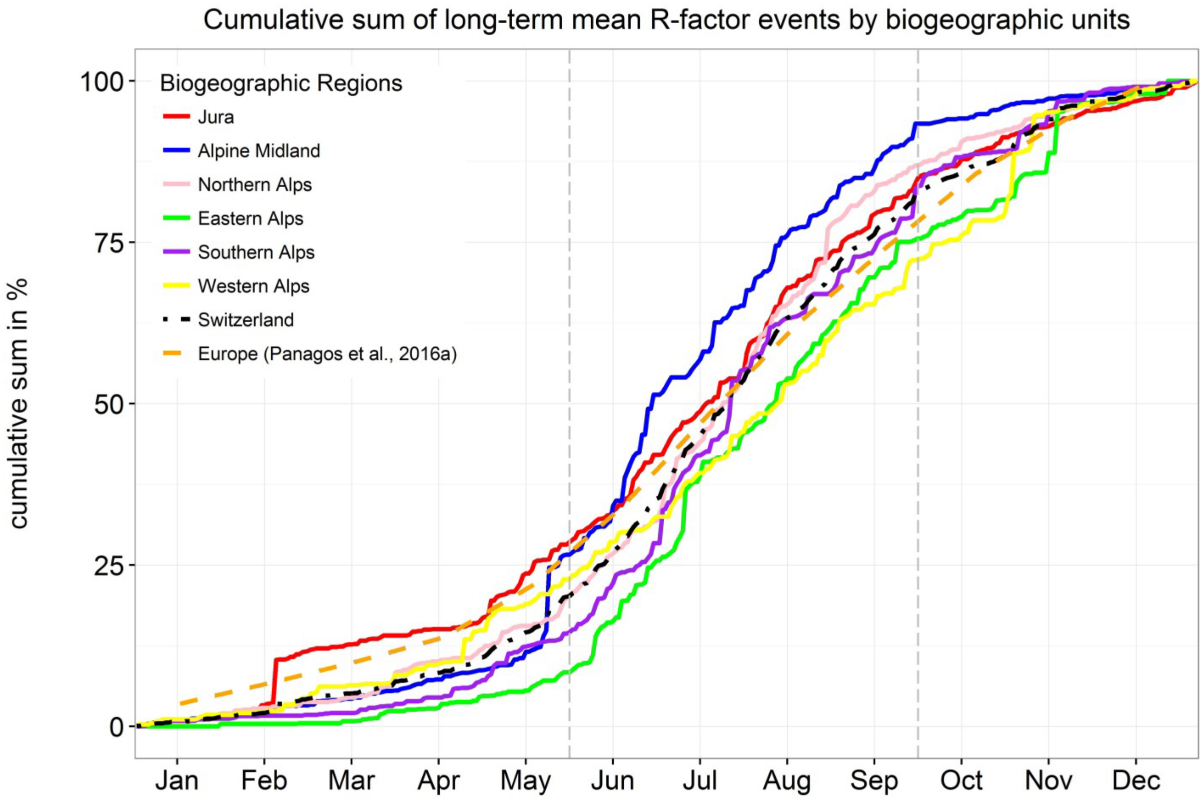

Figure 1: Cumulative daily rainfall erosivity proportion for Swiss biogeographic units, Switzerland, and monthly rainfall erosivity for Europe (linear smoothed, European data from Panagos et al., 2016a).

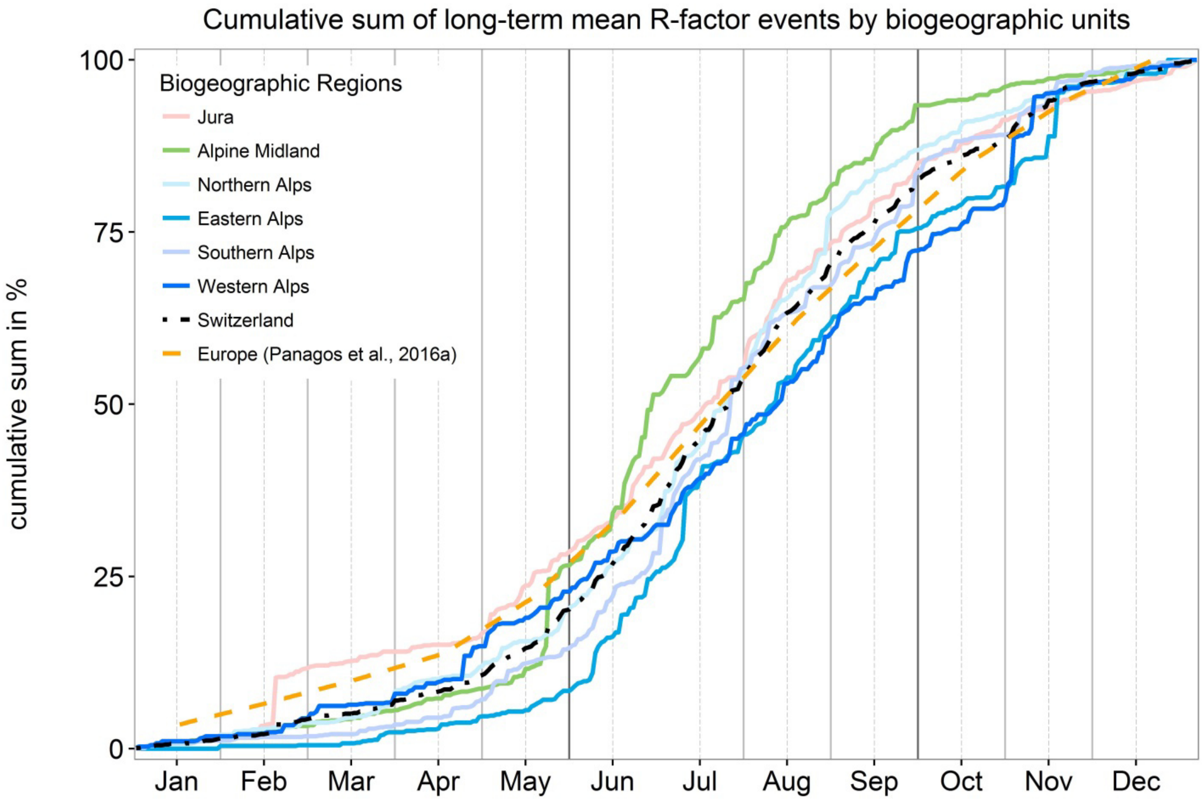

Figure 2: Cumulative daily rainfall erosivity proportion for Swiss biogeographic units, Switzerland, and monthly rainfall erosivity for Europe (linear smoothed, European data from Panagos et al., 2016a) with the 15-day intervals.

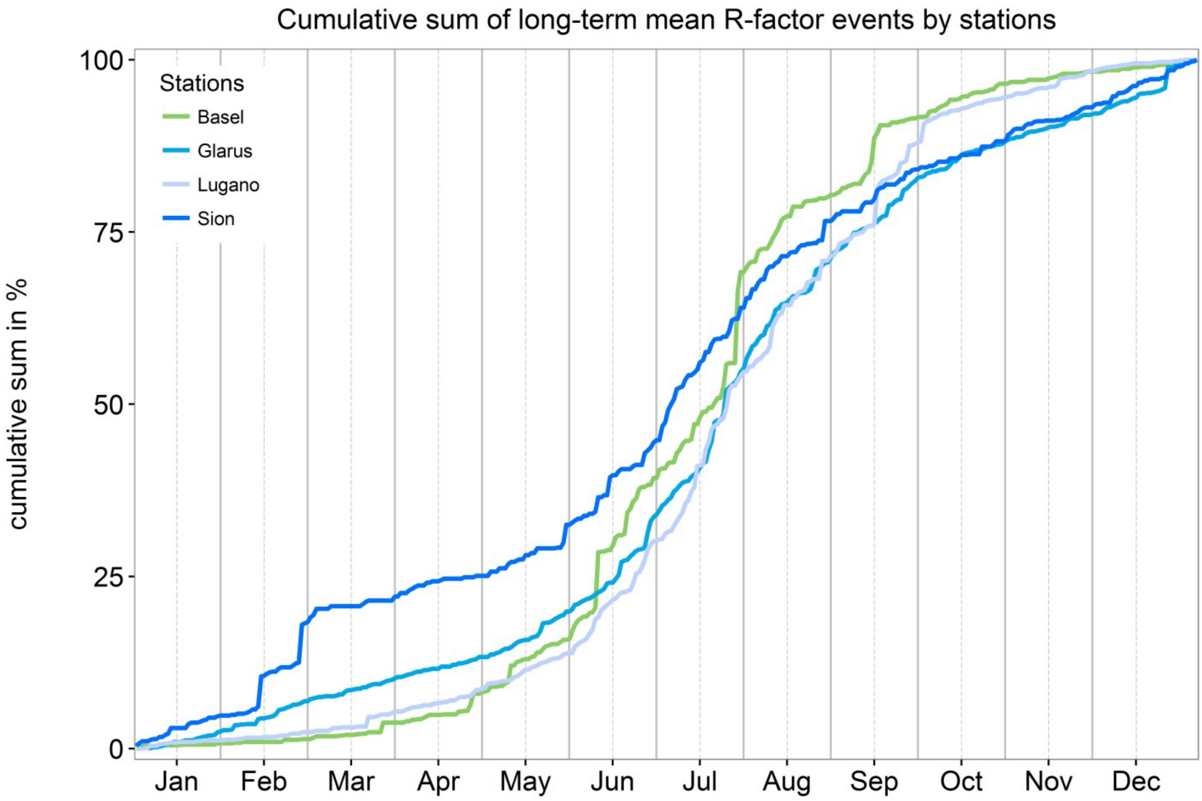

Figure 3: Cumulative daily rainfall erosivity proportion for exemplary stations in Switzerland with 15-day intervals

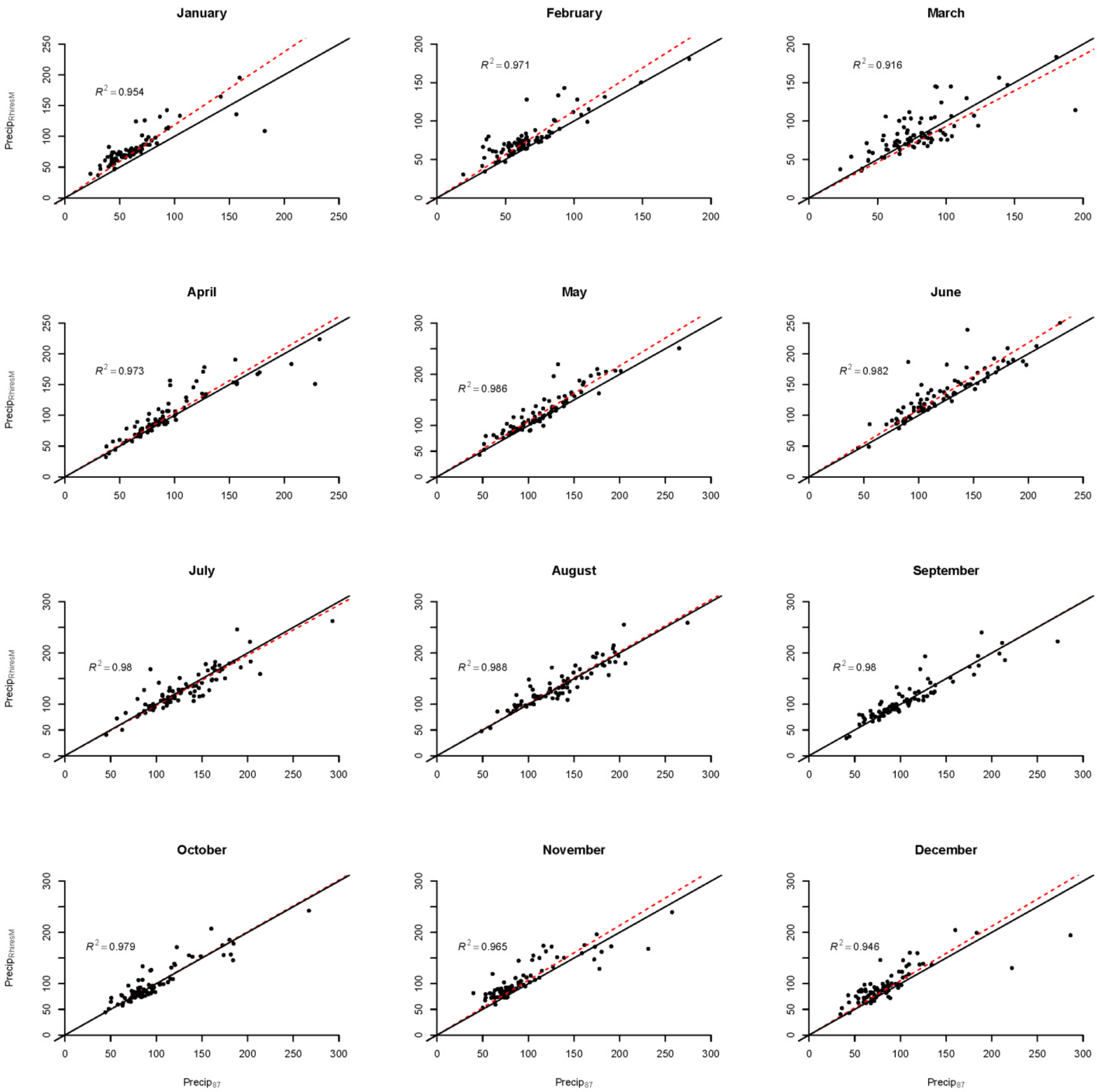

Figure 4: Relationships between precipitation data (mm) extracted from 87 gauging station measurements (Precip_{87}) and RhiresM ($\mathrm{Precip}_{\mathrm{RhiresM}}$)

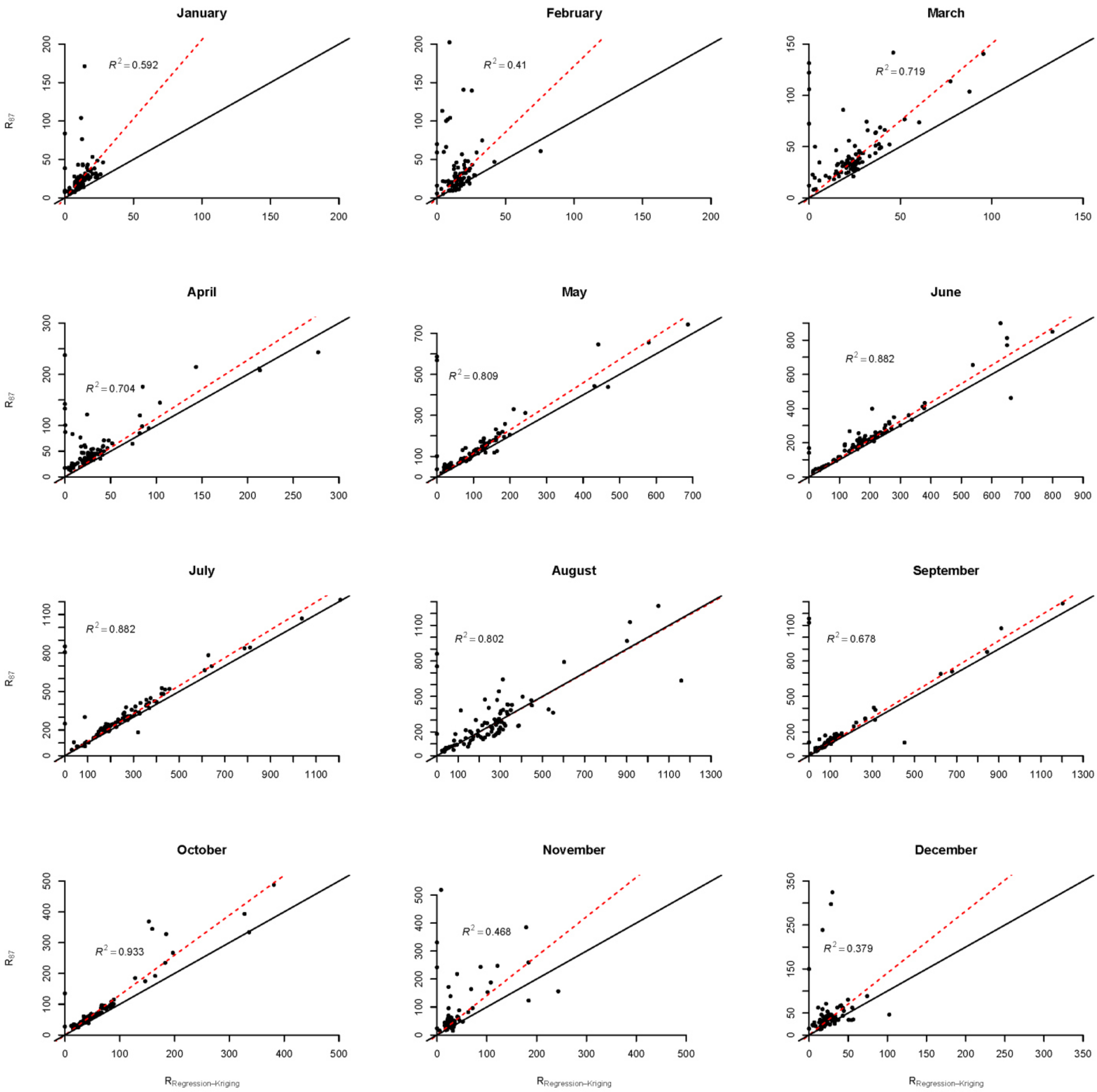

Figure 5: Relationships of R-factors (MJ mm ha^{-1} h^{-1} month^{-1}) calculated based on the 87 gauging station measurements (R_{87}) and interpolated by regression-kriging ($R_{Regression-Kriging}$)

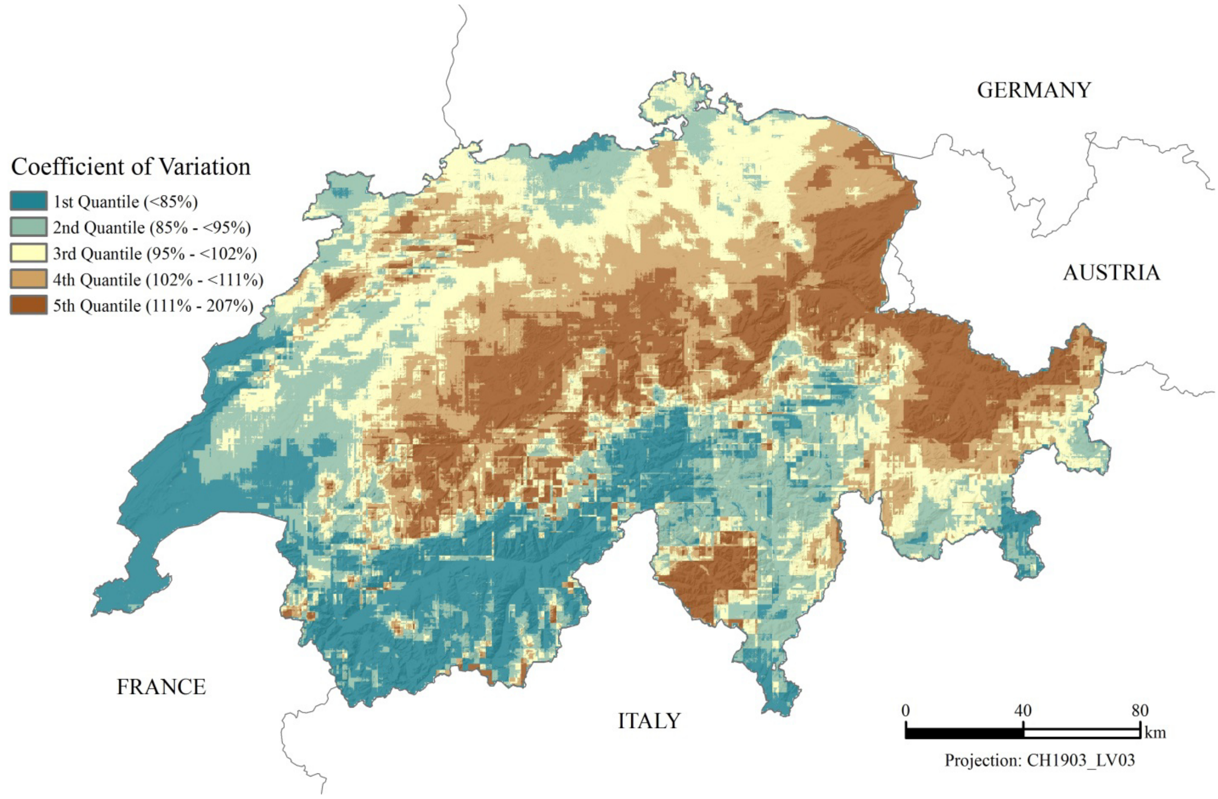

Figure 6: Coefficient of variation map for of monthly R-factors in Switzerland

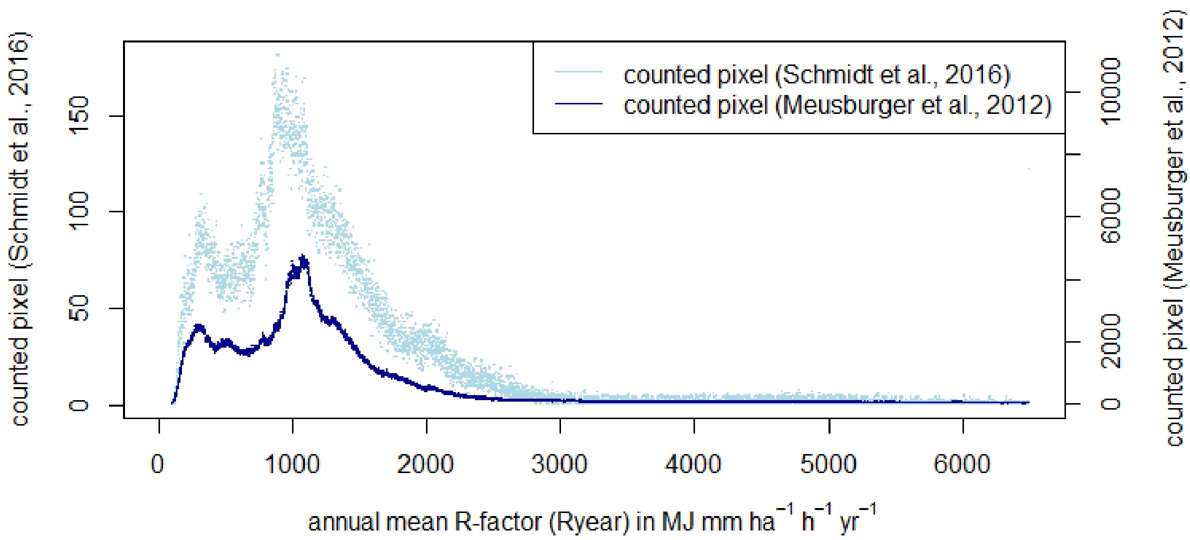

Figure 7: Frequency histogram of annual mean R-factor values (R_{year}) in Schmidt et al. (2016) and Meusburger et al. (2012)

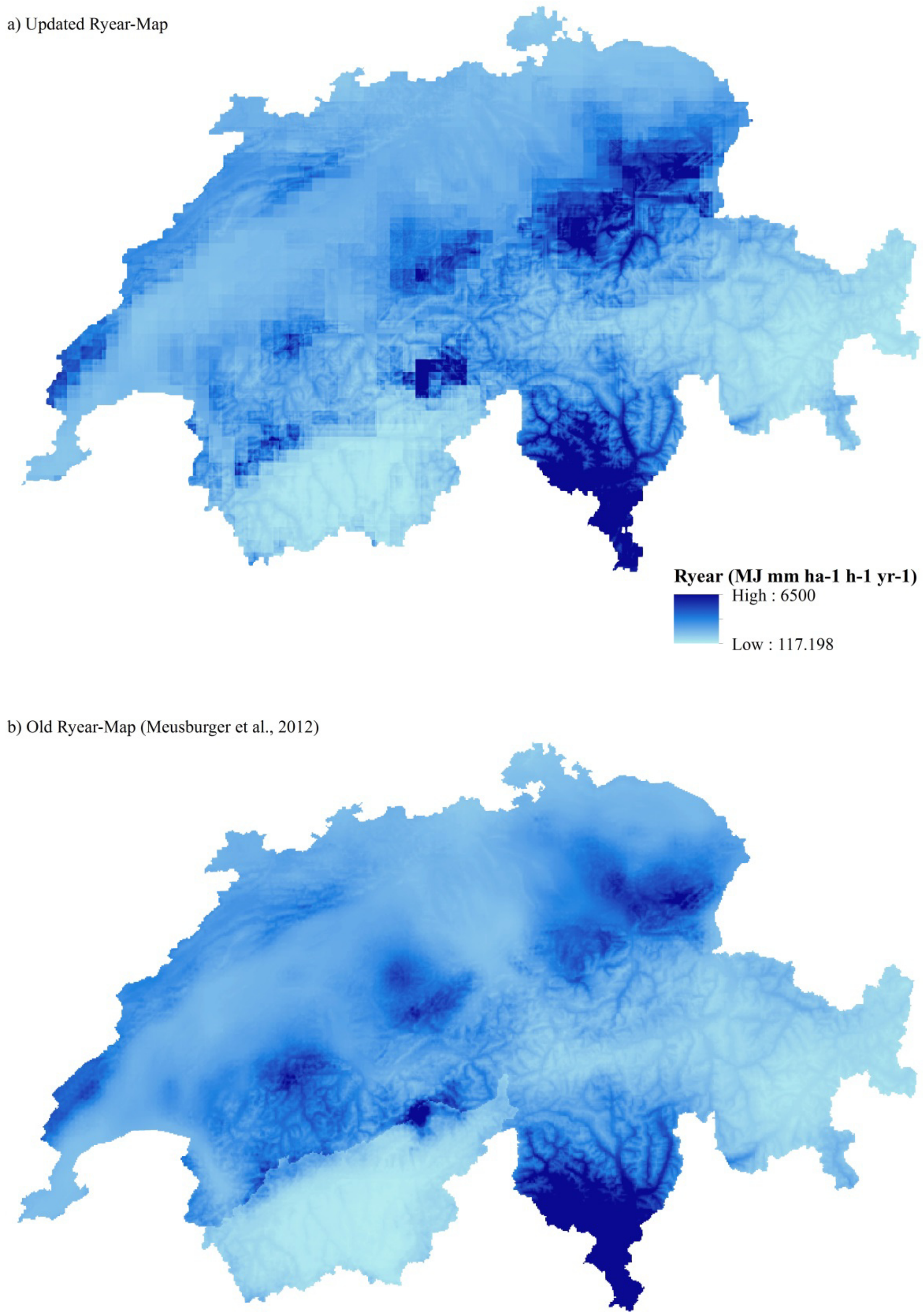

Figure 8: Comparison of the updated long-term annual mean R-factor map with Meusburger et al. (2012)