The measured data are tested against physically possible (Gilgen et al., 1995) and globally extremely rare limits as defined and used in the BSRN recommended data quality control (QC) testing developed by Long and Dutton (2002). Table 1 shows a summary of the percentage of data failed the QC tests between 2009 and 2011.

In general, the results are very successful with the measurements satisfied the physically possible and globally extremely rare limits.

There is a good agreement between simulations performed with LibRadtran model and observations for the global radiation with MBE -1.56% and RMSE 2.03%. The differences are very low for direct radiation where MBE is -1.32% and RMSE 1.82%. In the case of diffuse radiation, there is a larger difference between observations and simulations, where RMSE is 6.83%. (Garcia, 2011).

Figure 1. Location of the Izaña station on a global map of all BSRN stations (http://www.bsrn.awi.de)

Figure 2.- Instruments installed at the IZA BSRN.

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Figure 3.- Scatterplot of modelled and measured clear-sky between March 2009 and December 2011 (a) global (b) direct (c) diffuse radiation at the BSRN IZANA. The modelled values were calculated with the radiative transfer model LibRadtran (N: 369 days)

Figure 4.- Monthly means of (a) global radiation, (b) direct radiation, (c) diffuse radiation, (d) UV-B, (e) UV-A and (f) longwave downward radiation (LWdn) between March 2009 and December 2011 measured at IZA BSRN. The error bars show the standard deviations in the measurements.

