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Trends and variability of convective and stratiform precipitation in the Czech Republic over 1982–2015

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Significant trends in some characteristics of atmospheric precipitation were observed in Central Europe in recent decades. Trend analysis of convective and stratiform precipitation in the Czech Republic shows that mean convective precipitation was rising over 1982–2010 in all three seasons in which convective precipitation is important (spring, summer and autumn), and they were stronger than the trends in mean stratiform precipitation in each season. Heavy convective precipitation increased in summer and autumn and decreased in spring at majority of stations while heavy stratiform precipitation increased in spring and autumn and decreased in summer.
In this study we extend the previous analyses of trends in convective and stratiform precipitation by including the most recent past (after 2010). We also discuss how trends and variability in convective and stratiform precipitation characteristics in Central Europe are related to atmospheric circulation and temperature. Stratiform precipitation is by its nature more important for agriculture, and a decrease of stratiform amounts in combination with higher temperatures can lead to larger soil moisture deficits (as observed e.g. in spring and summer 2003). On the other hand, more frequent and intense heavy convective and stratiform precipitation may cause floods and landslides, thus representing additional hazards and damages.