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Different Applications of FORTRACC: From Convective Clouds to thunderstorms and radar fields

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The algorithm Forecasting and Tracking the Evolution of Cloud Clusters (ForTraCC), Vila et al. (2008), has been employed operationally in Brazil since 2005 to track and forecast the development of convective clouds. This technique depicts the main morphological features of the cloud systems and most importantly it reconstructs its entire life cycle. Based on this information, several relationships that use the area expansion and convective and stratiform fraction are employed to predict the life time duration and cloud area. Because of these features, the civil defense and power companies are using this information to mitigate the damages in the population. Further developments in FORTRACC included the integration of satellite rainfall retrievals, radar fields and thunderstorm initiation. These improvements try to address the following problems: a) most of the satellite rainfall retrievals do not take into account the life cycle stage that it is a key element on defining the rain area and rain intensity; b) by using the life cycle information it is possible to better predict the precipitation pattern observed in the radar fields; c) cloud signatures are associated to the development of systems that have lightning and no lightning activity. During the presentation, an overview of the different applications of FORTRACC will be presented including case studies and evaluation of the technique. Finally, the presentation will address how the users can have access to the algorithm to implement in their institute.