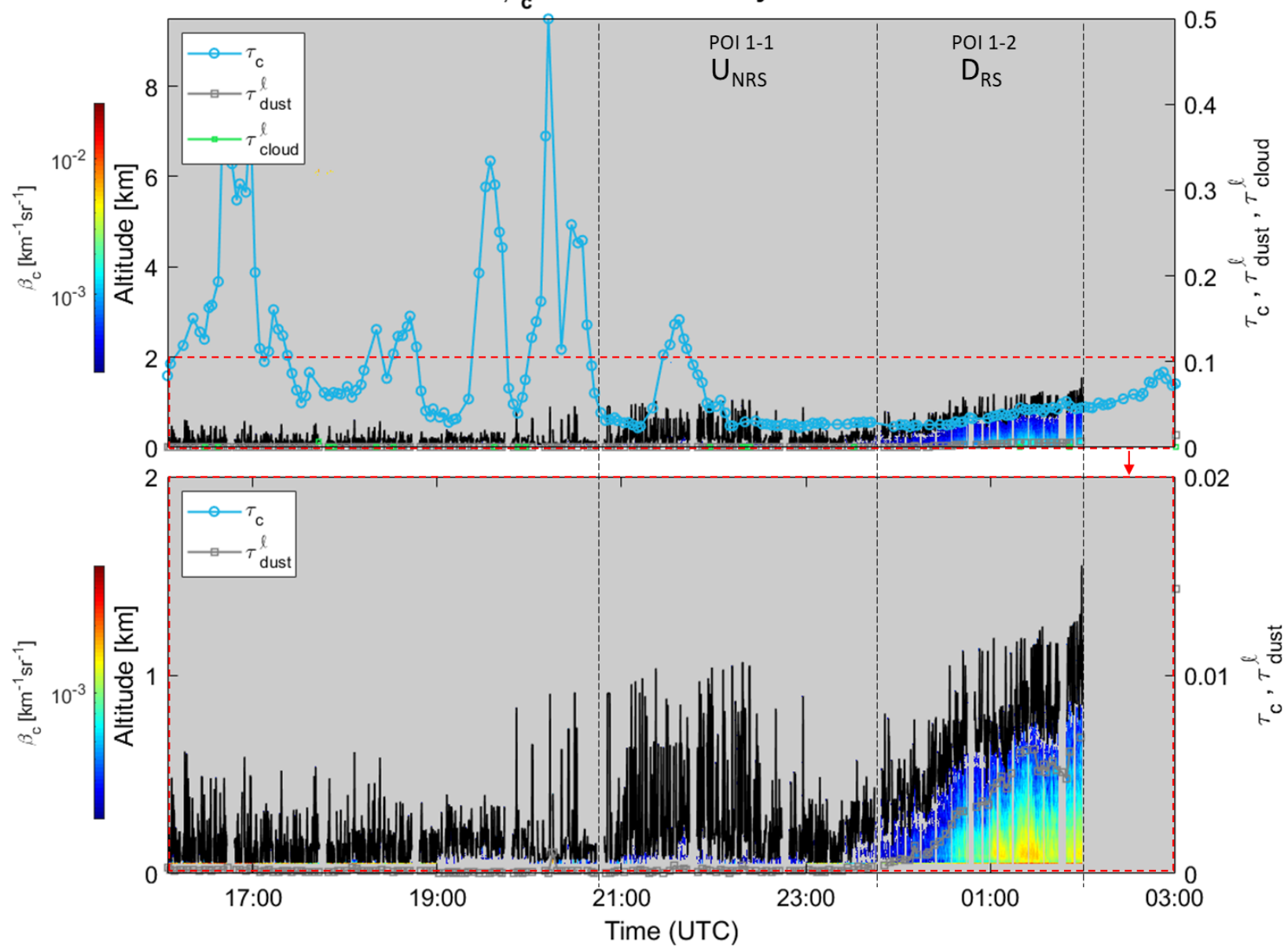


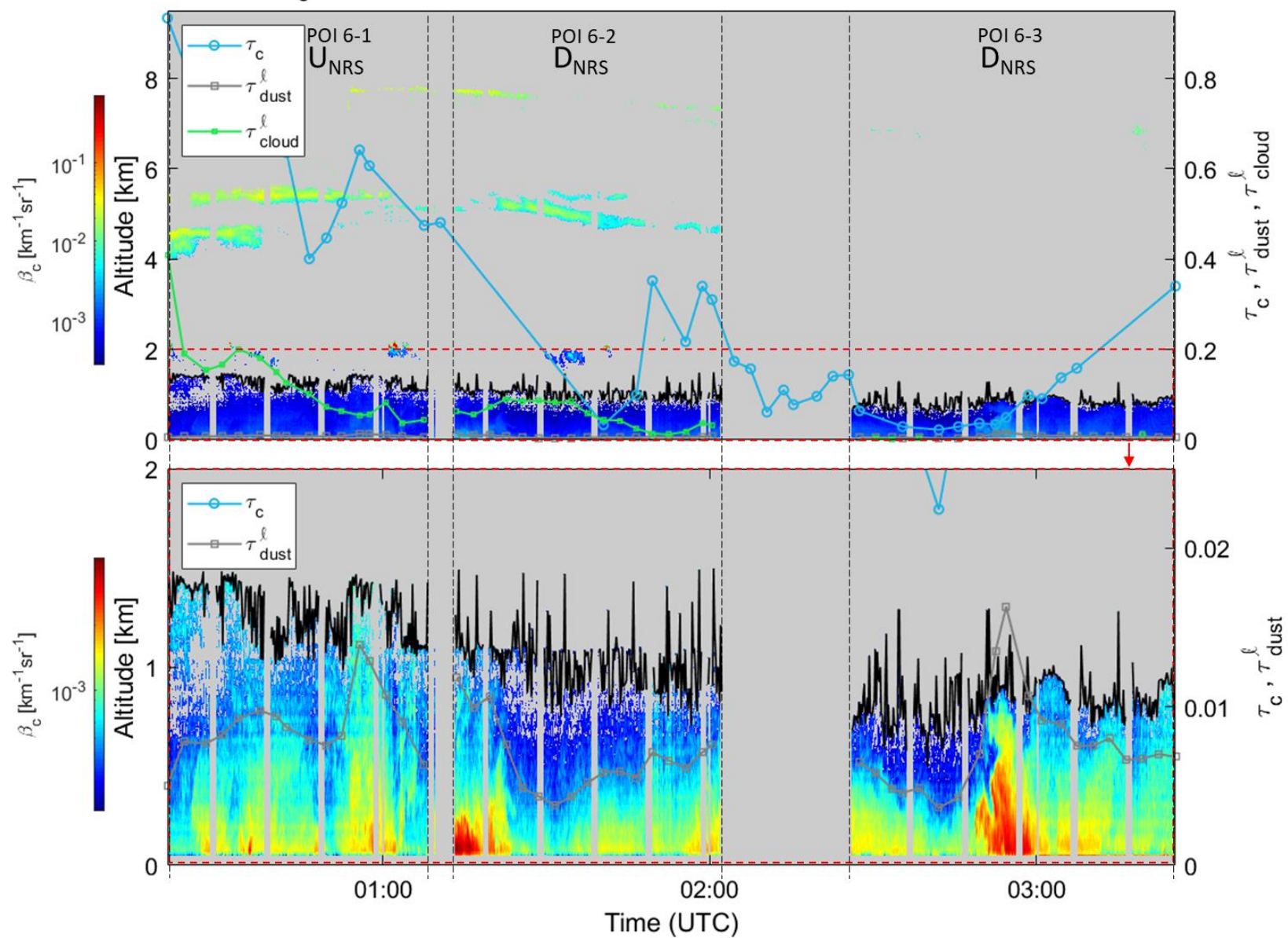
S6 Daily Lidar profiles during May, 2019

Daily $\beta_{c,\sim}(z)$ profiles as a function of time. $\beta_{c,\sim}(z)$ is defined in Eq. (2) of the main text (for simplicity we write $\beta_c(z)$ as the ordinate of the profiles in this supplementary material file). The gray background color of the profiles represents NAN (see the caption of Fig. 2 for details). The continuous curves (whose scale appears on the right of the profiles) are derived CM optical depths (τ_c , τ_{dust}^ℓ , and τ_{cloud}^ℓ) as defined in the main text. Periods of interest (POI {day in May}{sequence number on that day} along with their subclassification are shown between the dashed vertical lines that define their temporal extent). The black coloring shows the DLH (the high frequency outputs of the DLH process). The bottom profile is a 0 to 2 km zoom of the top profile (where $\beta_c(z)$ values above the DLH are excluded). Details on the native temporal resolution (11 seconds) of the Doppler lidar and bin-averaging resolution of the lidar profiles (matched to the AERONET temporal resolution and sampling frequency) can be found in Appendix A3 of the main text.

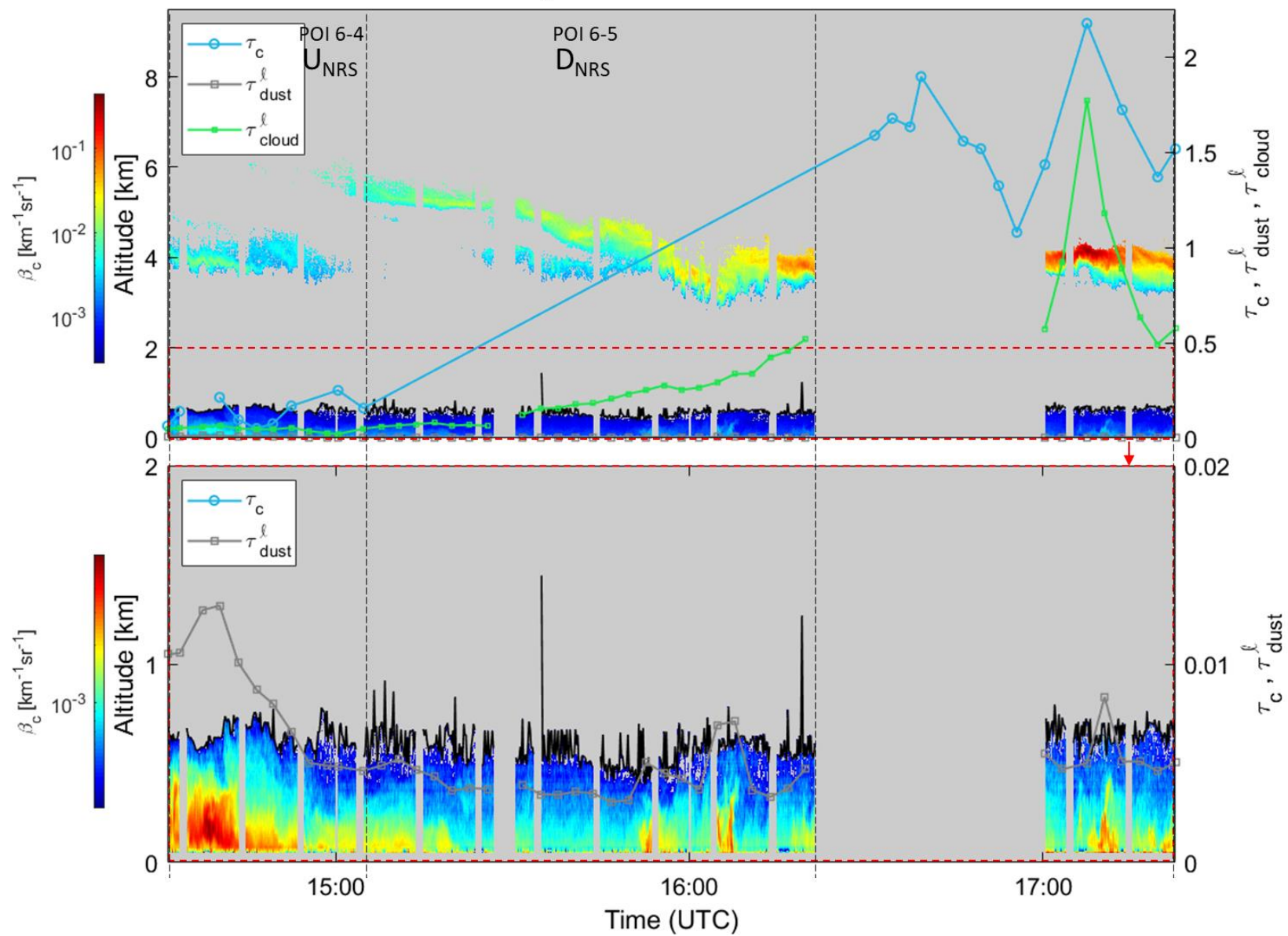
β_c - KLRS 01/02-May-2019



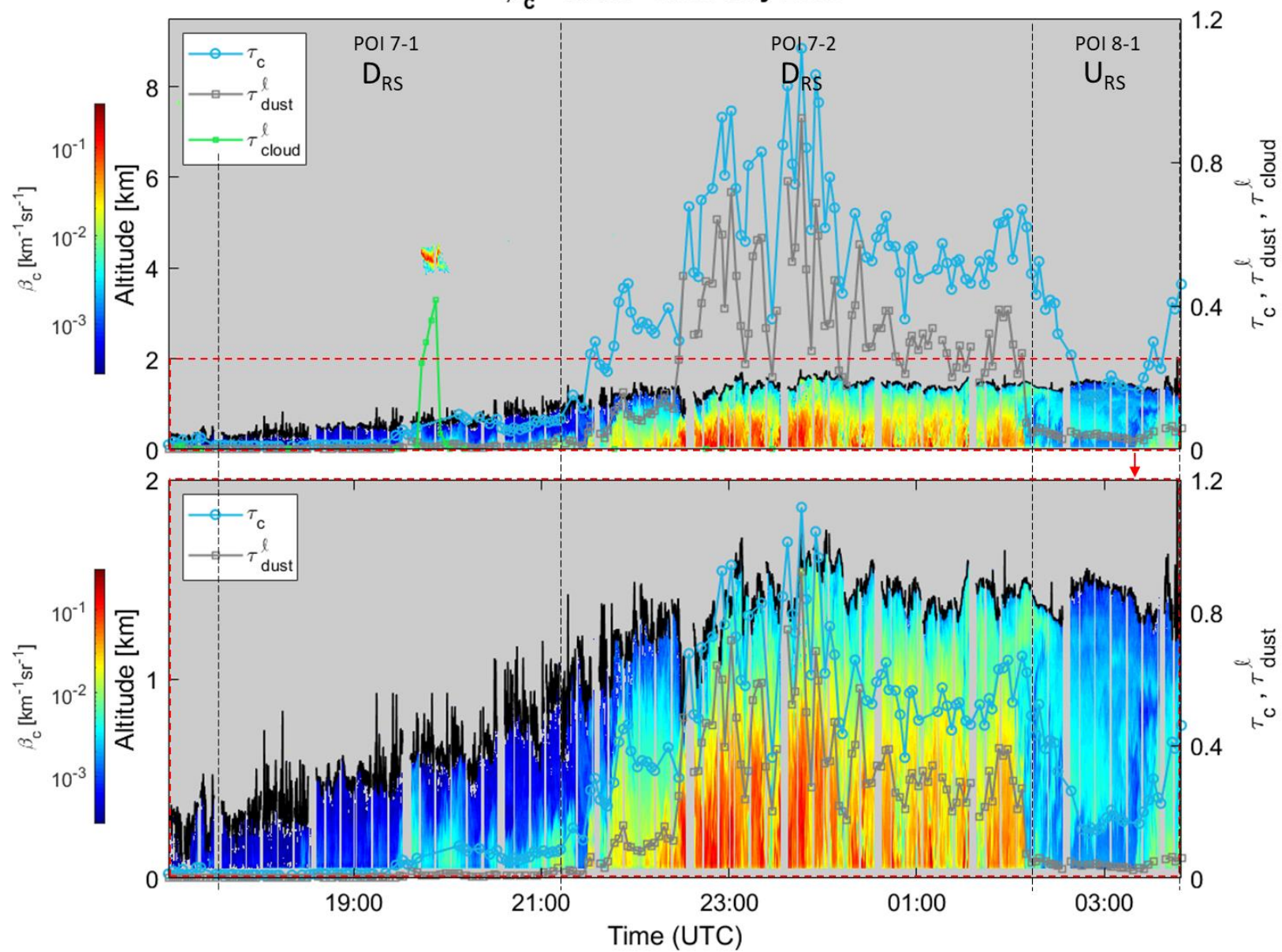
β_c - KLRS 06-May-2019 [late afternoon at local time on May 05]



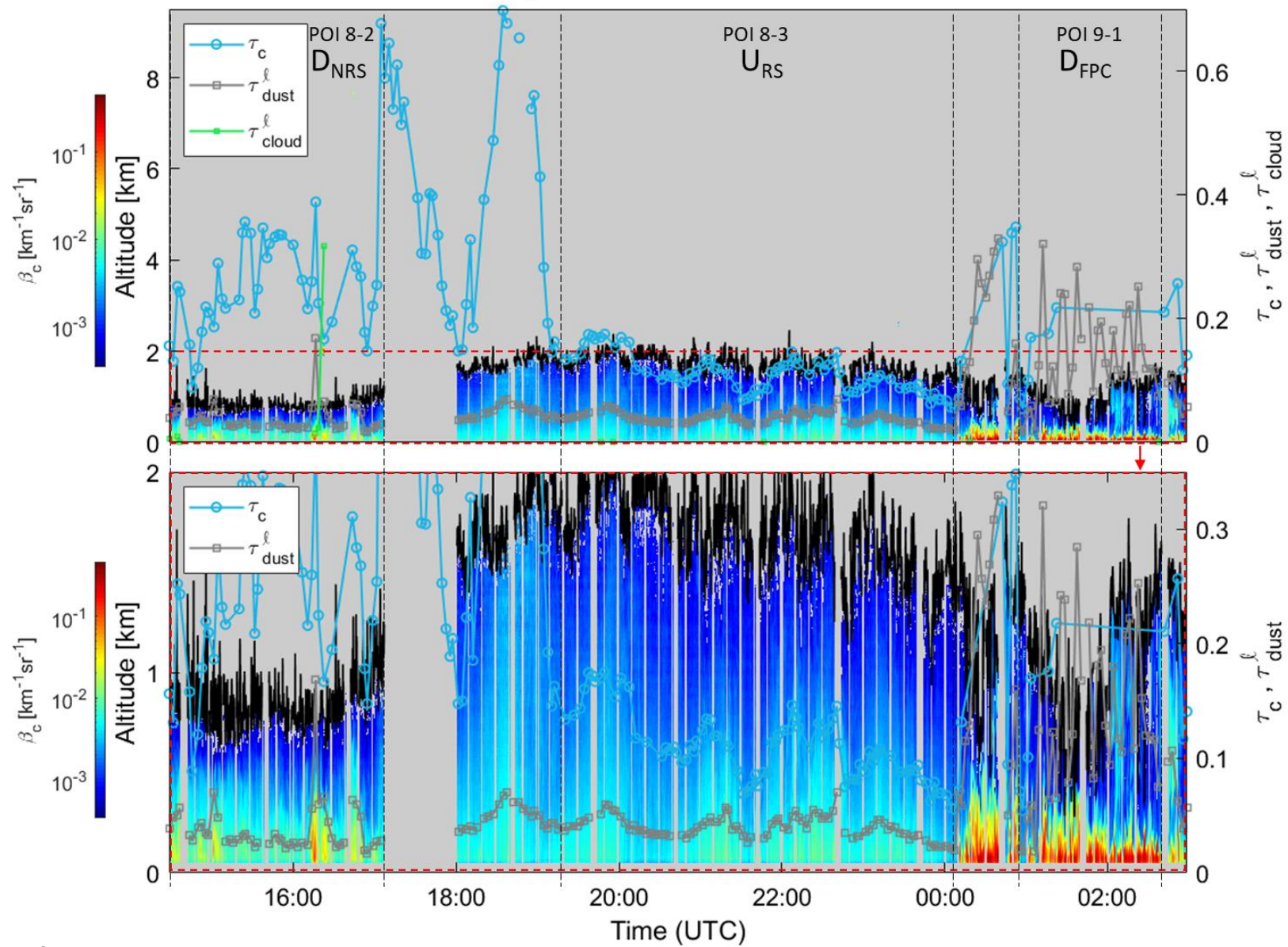
β_c - KLRS 06-May-2019



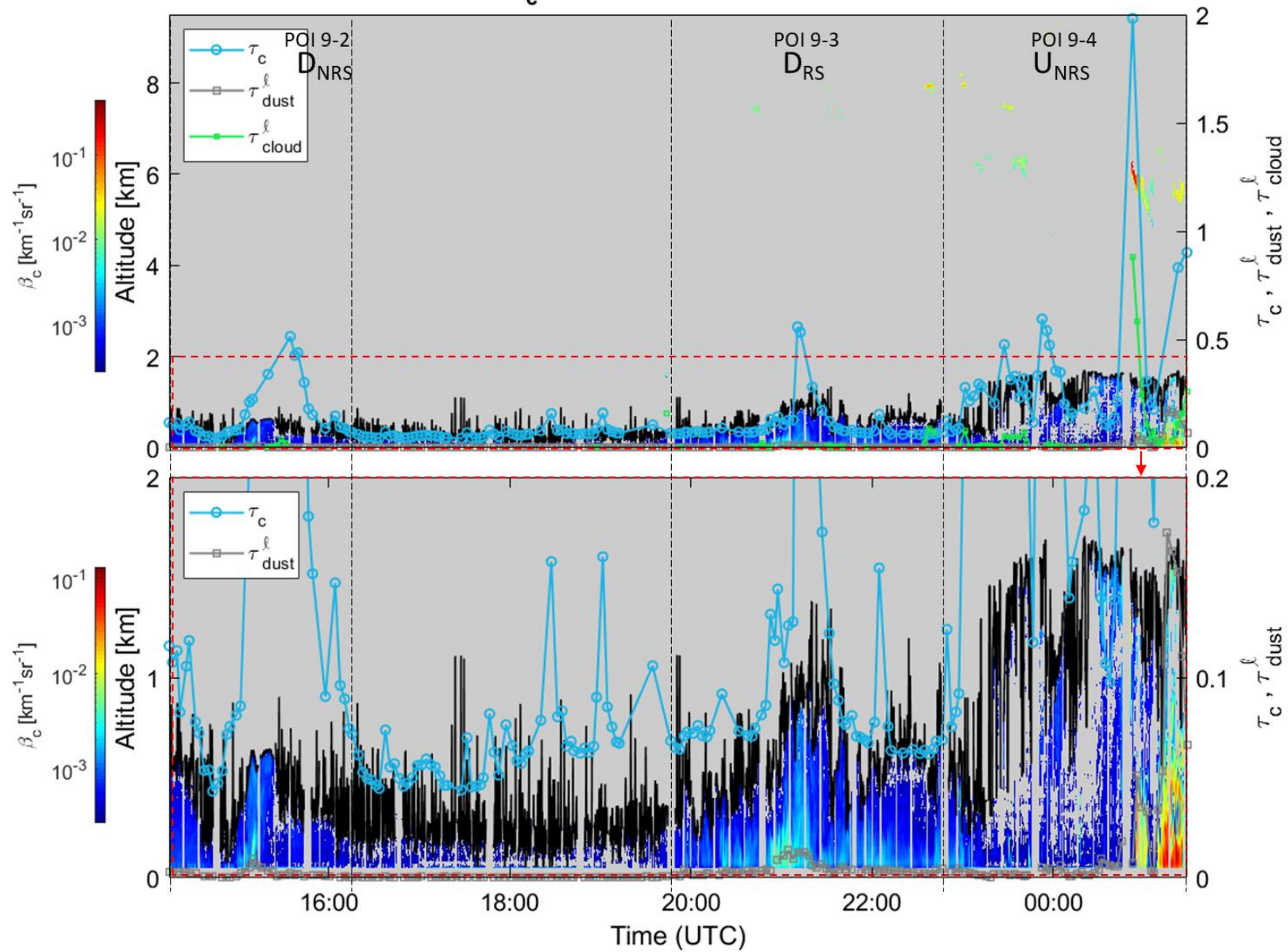
β_c - KLRs 07/08-May-2019



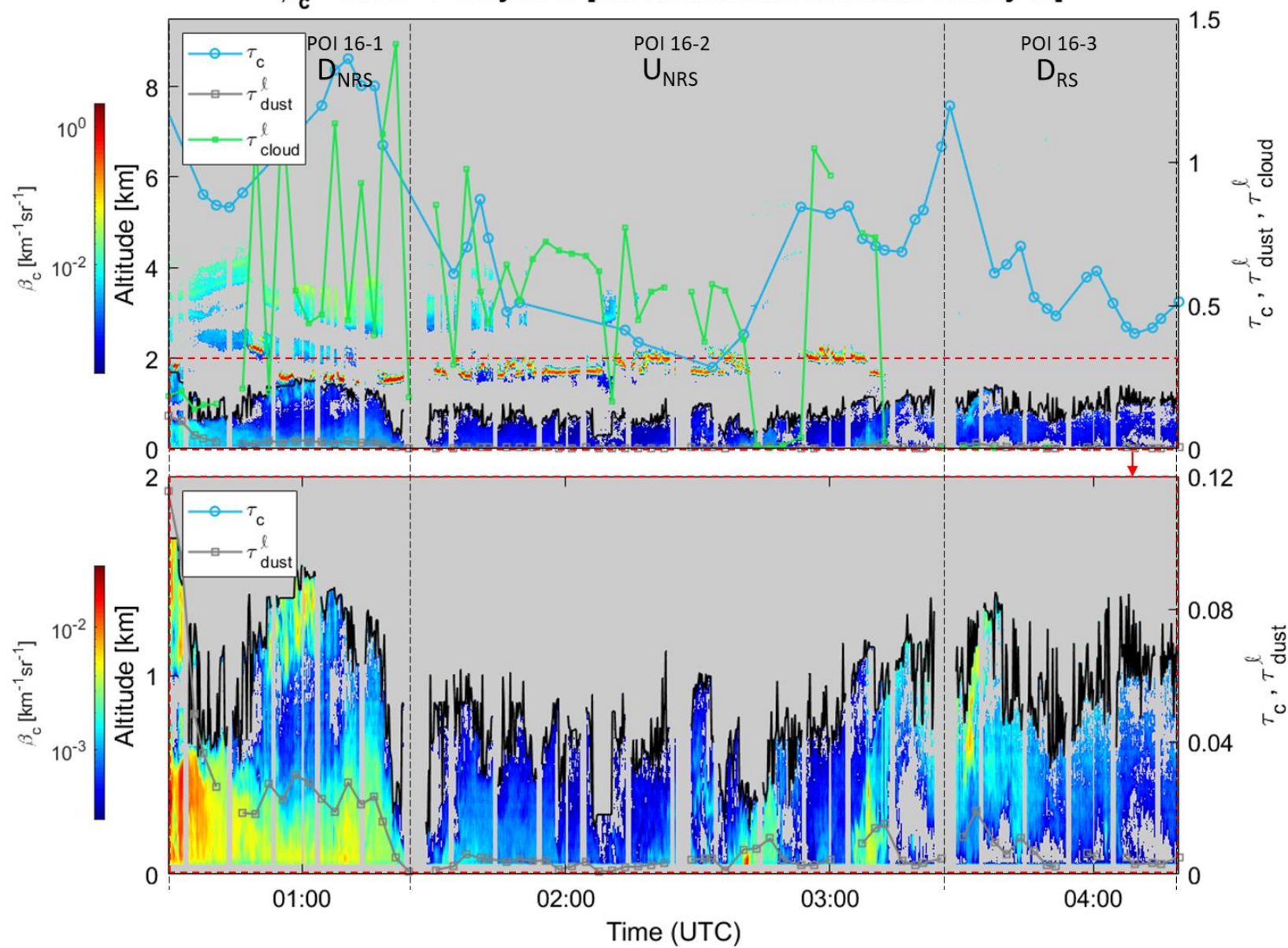
β_c - KLRS 08/09-May-2019



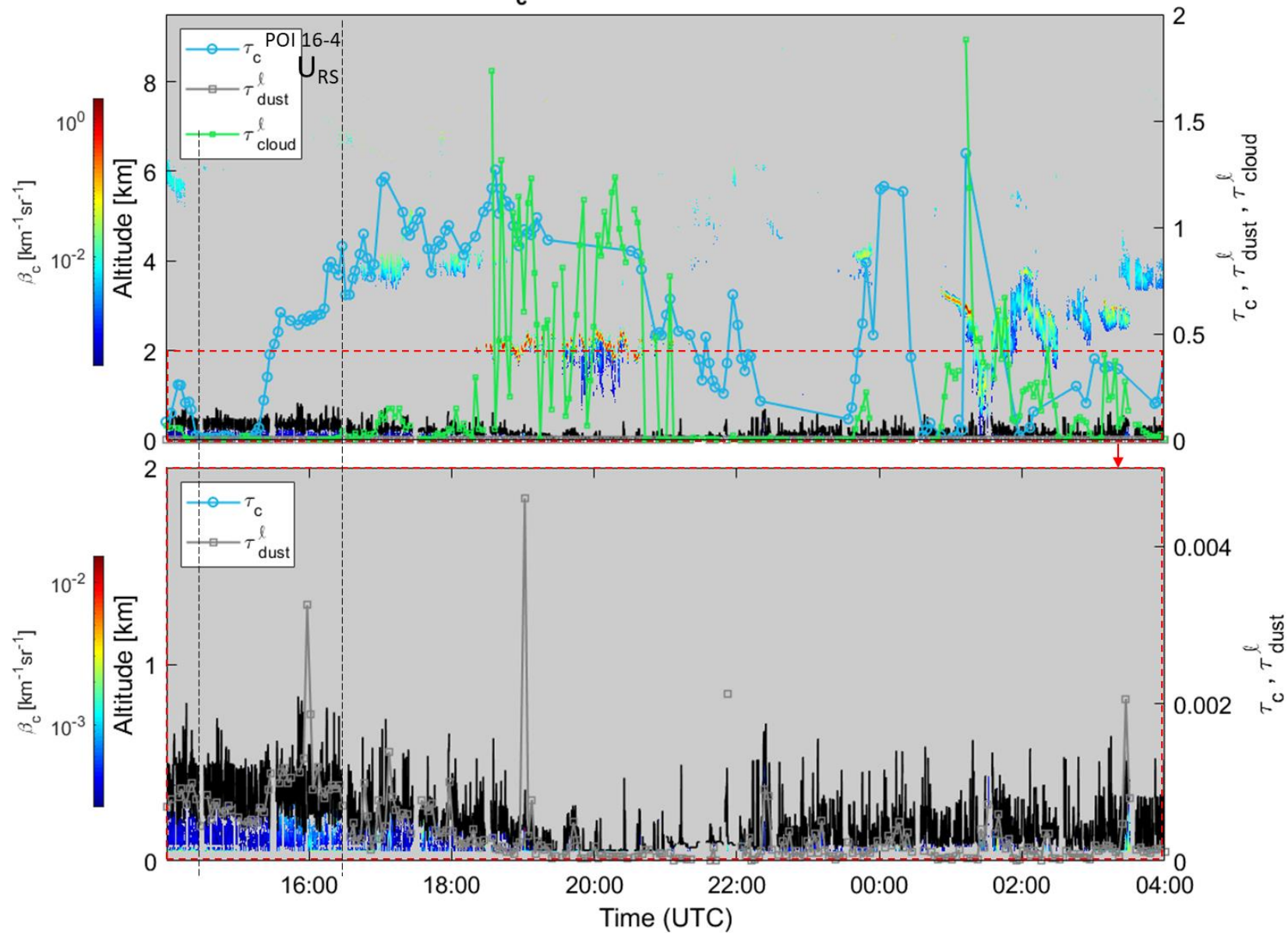
β_c - KLRS 09/10-May-2019



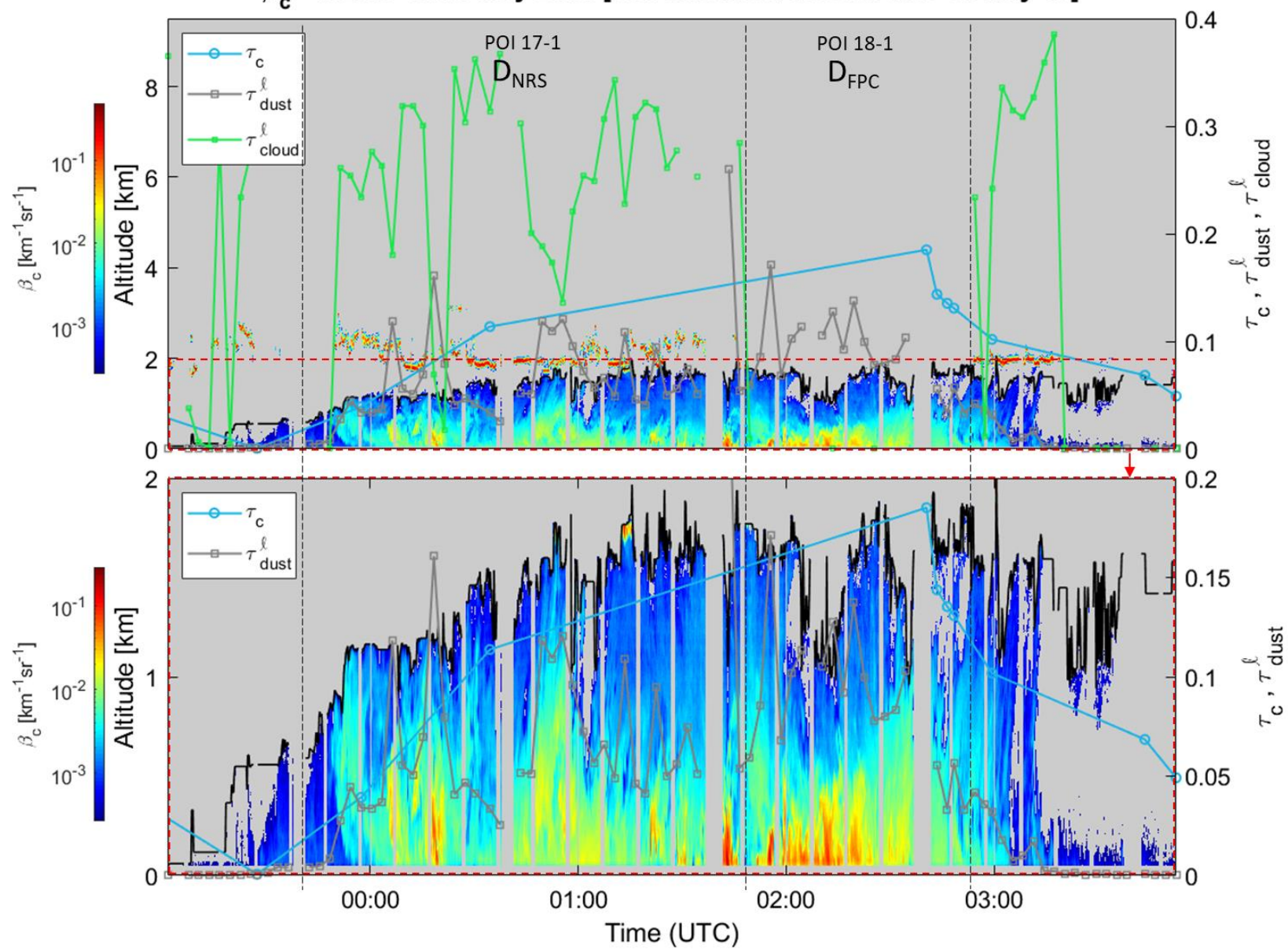
β_c - KLRS 16-May-2019 [late afternoon at local time on May 15]



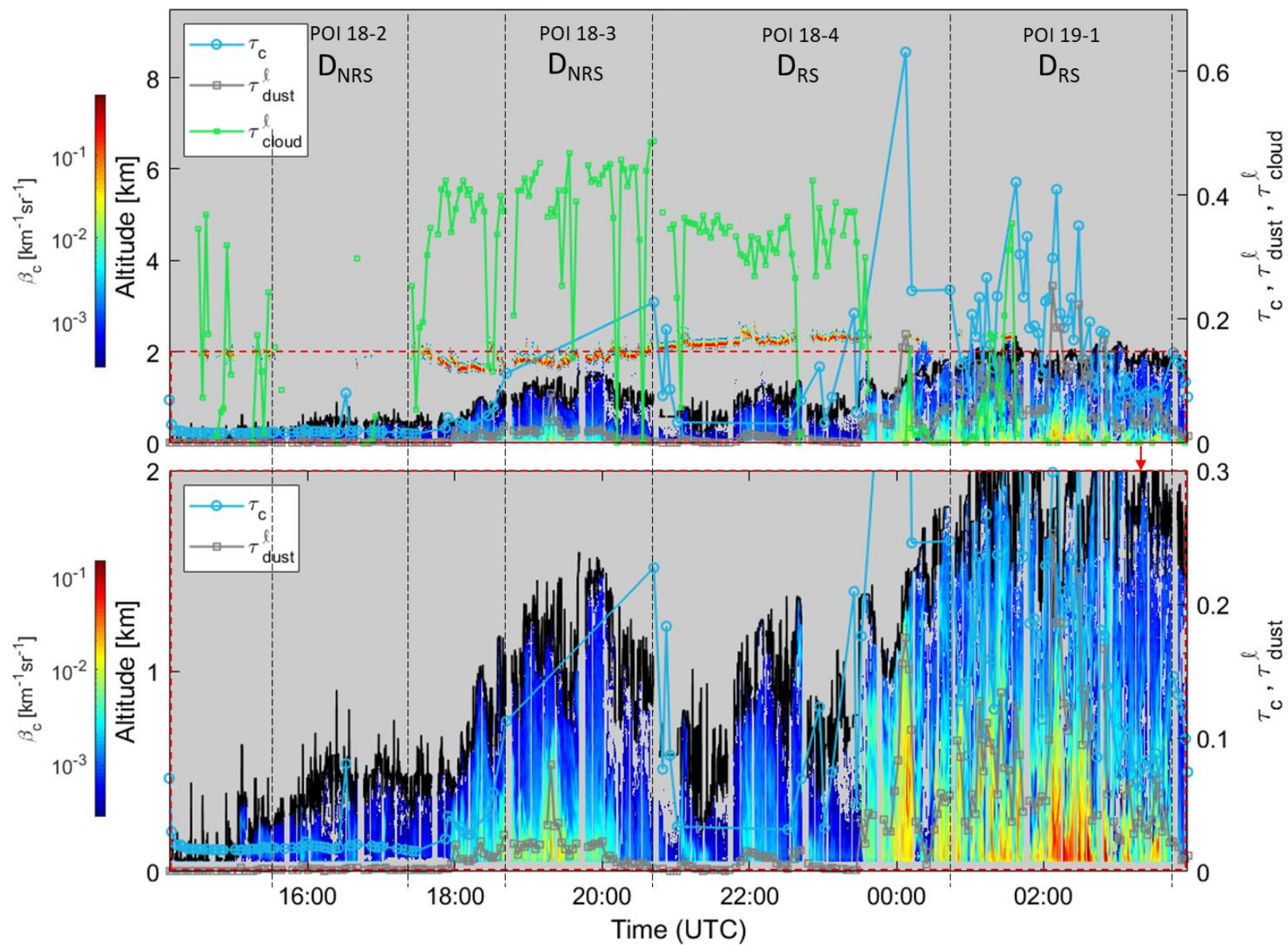
β_c - KLRS 16/17-May-2019



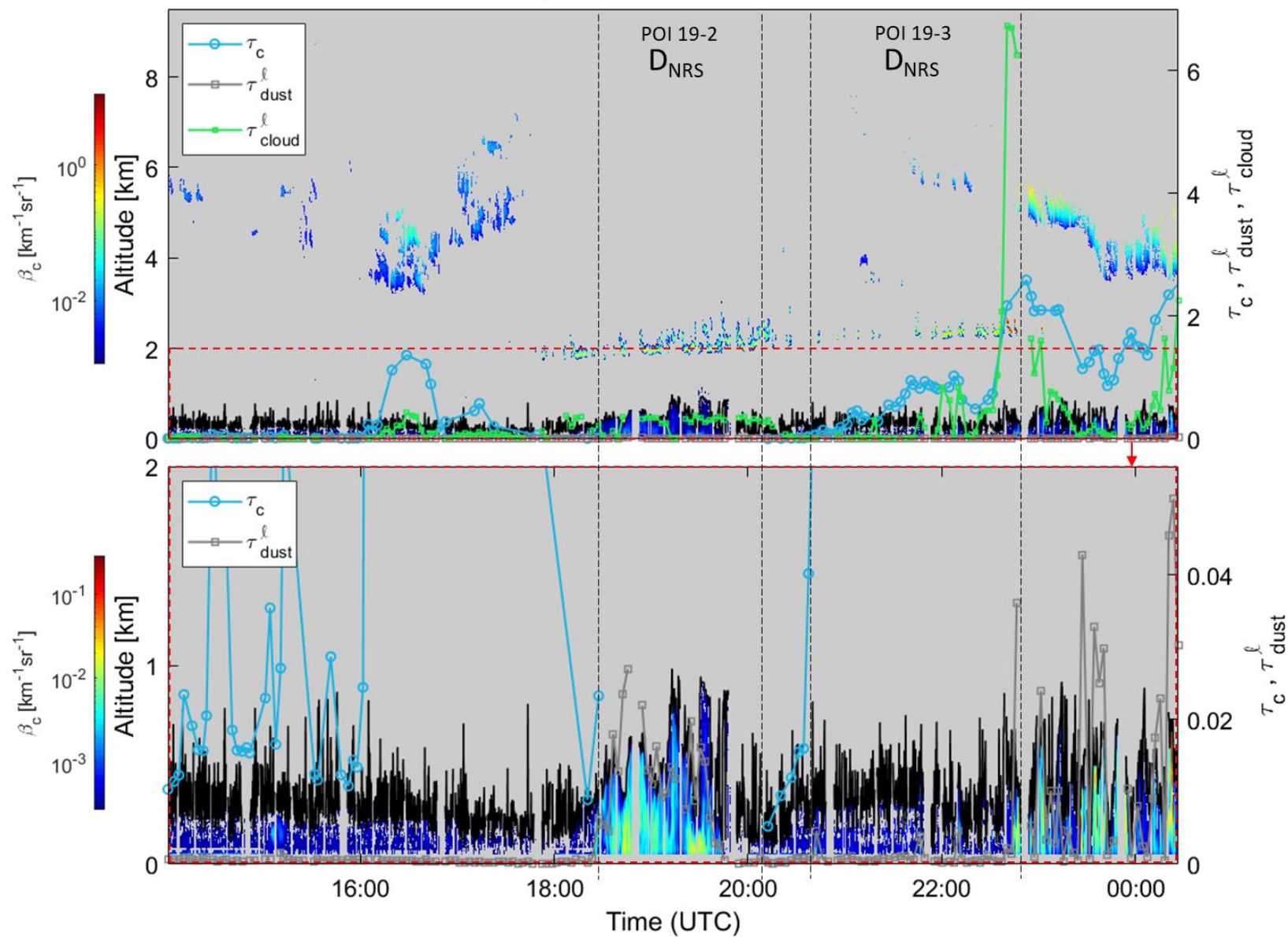
β_c - KLRS 17/18-May-2019 [late afternoon at local time on May 17]



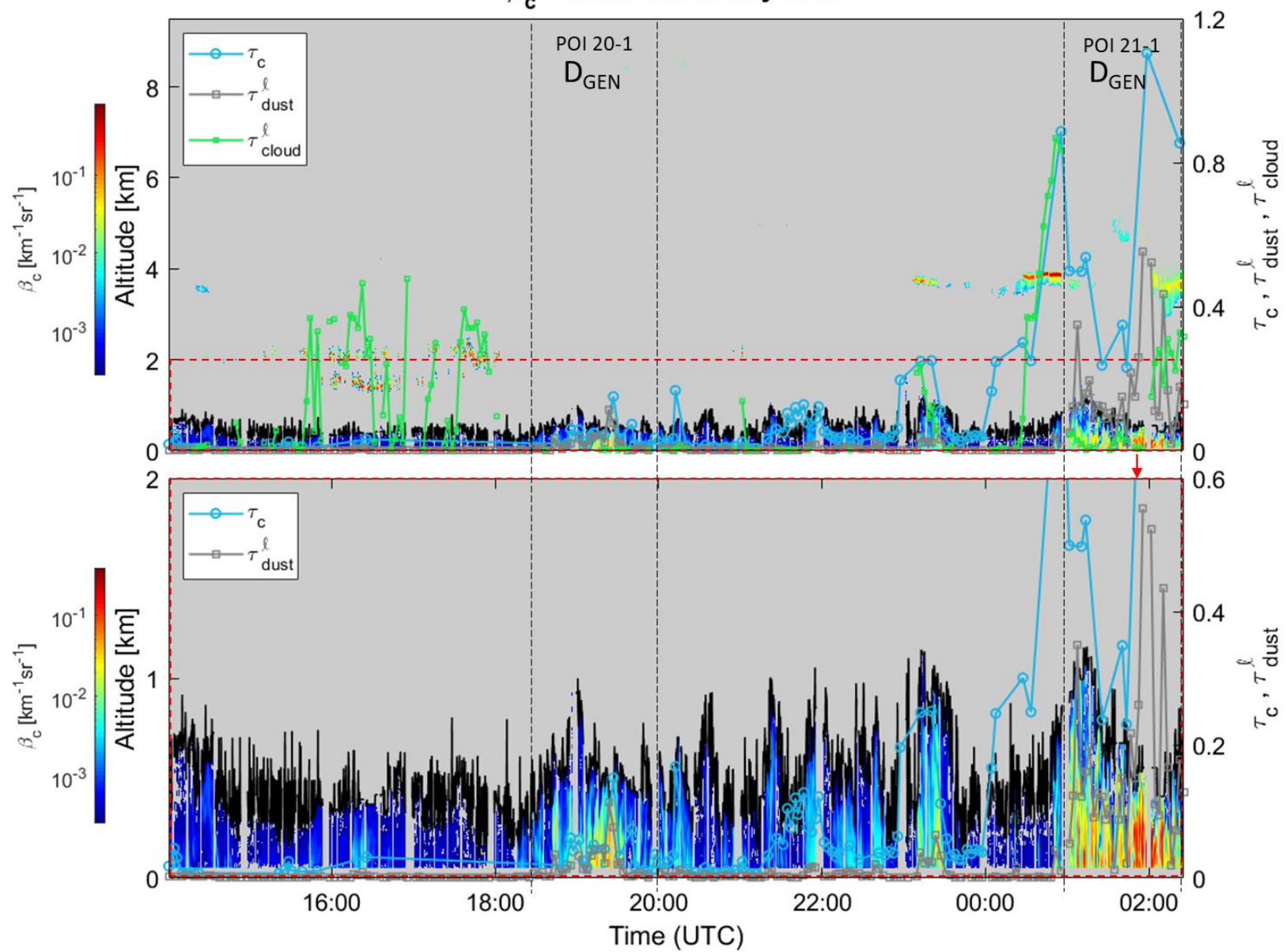
β_c - KLRS 18/19-May-2019



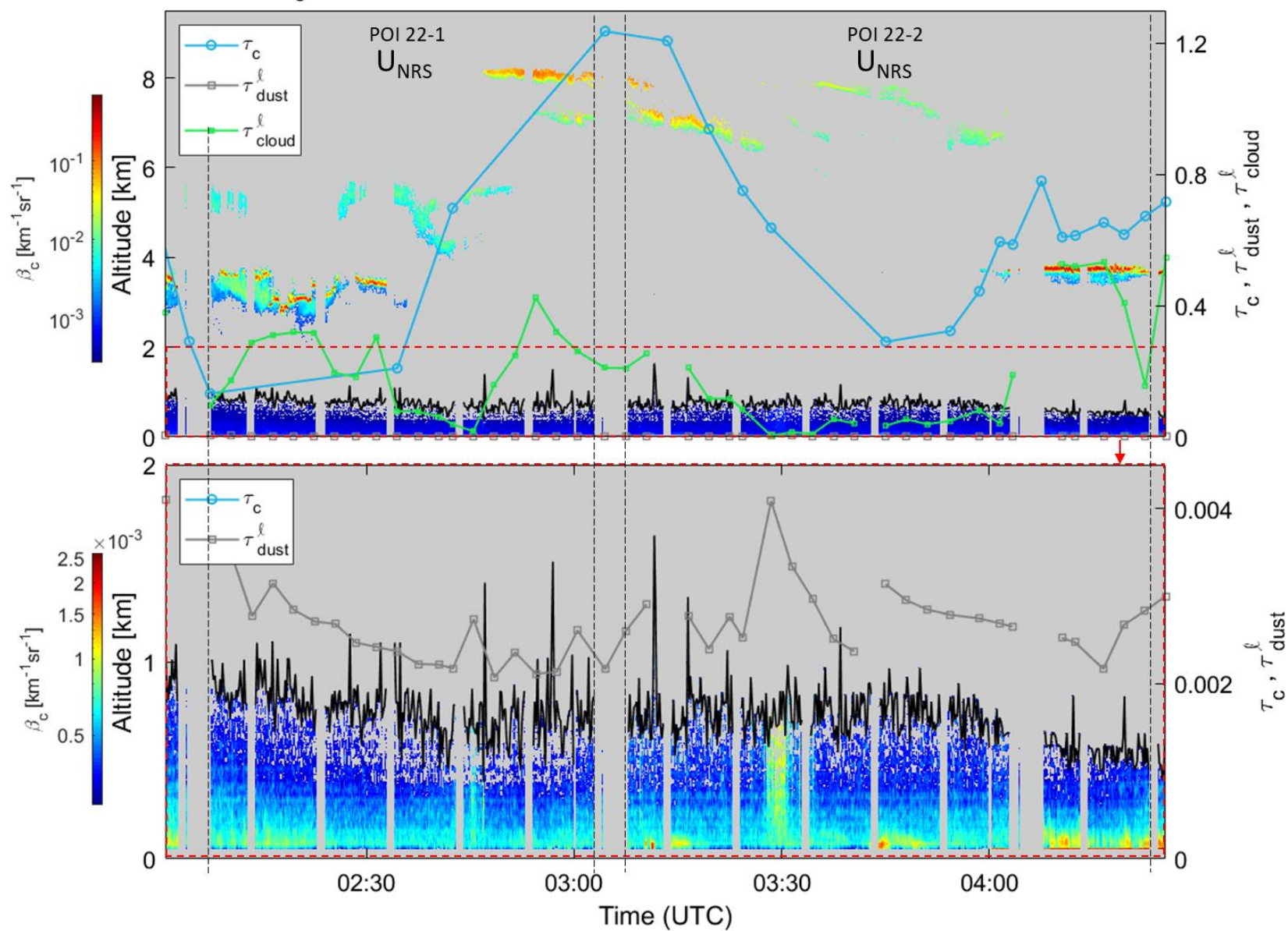
β_c - KLRS 19-May-2019



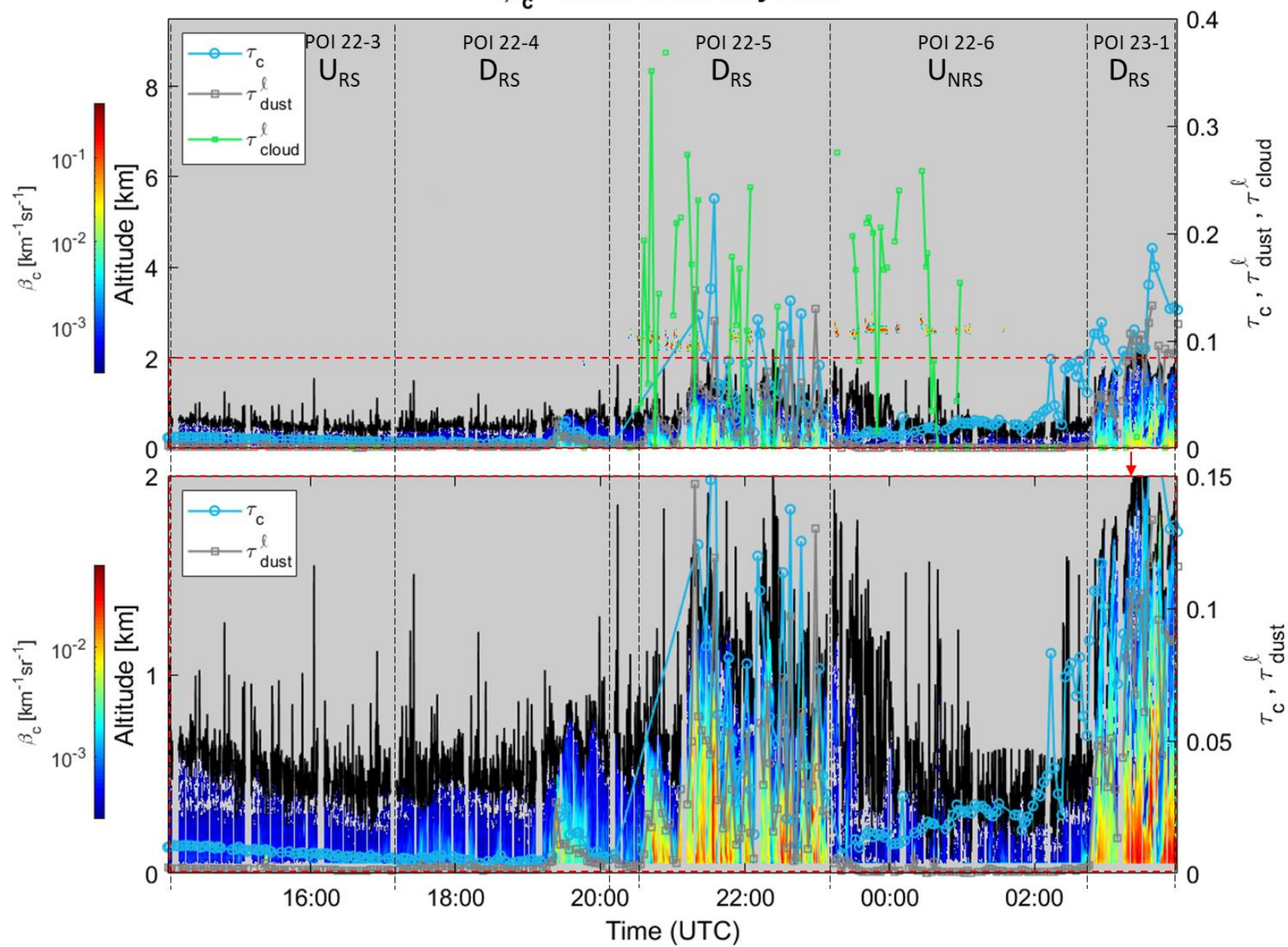
β_c - KLRS 20/21-May-2019



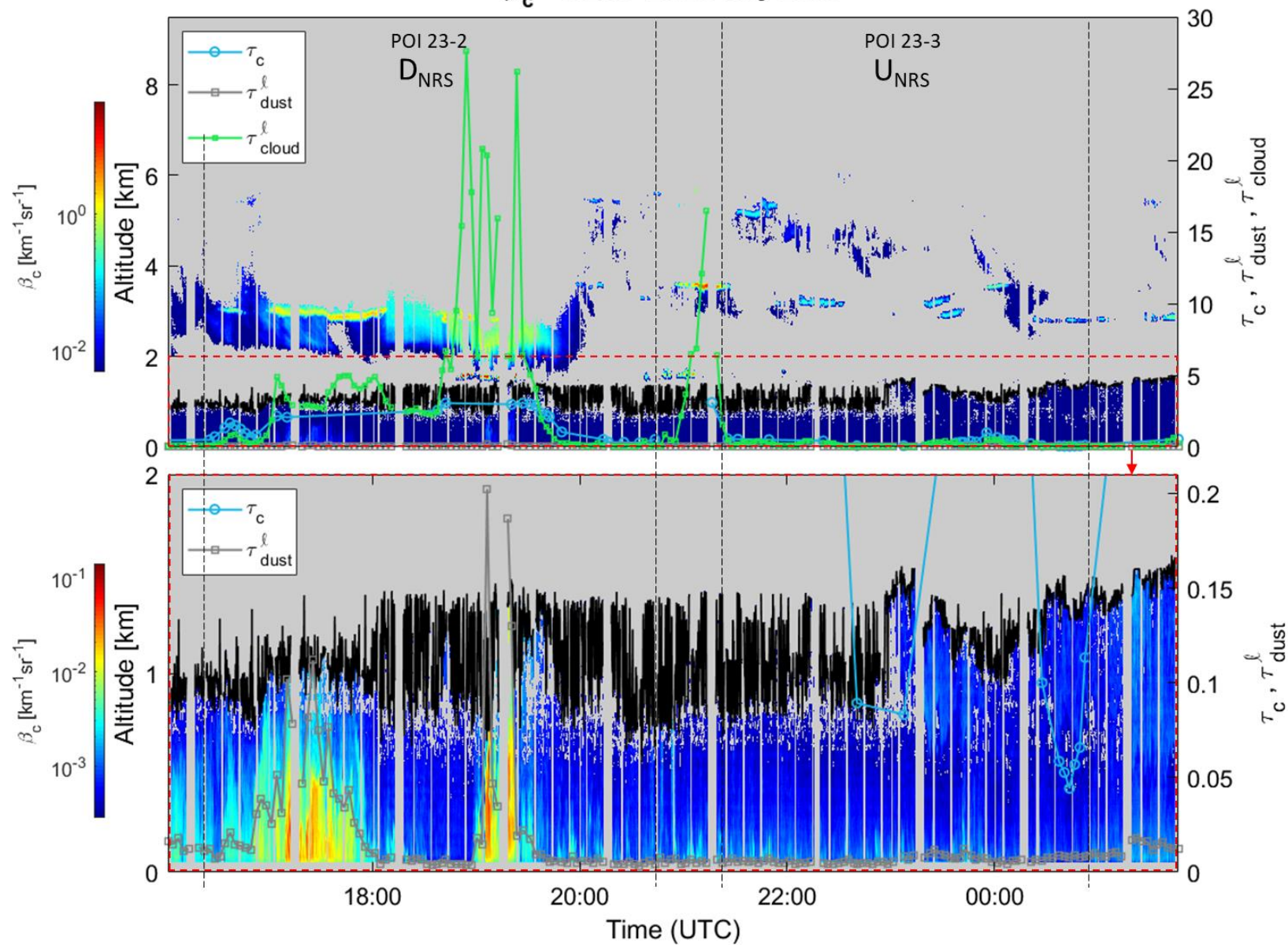
β_c - KLRS 22-May-2019 [late afternoon at local time on May 21]



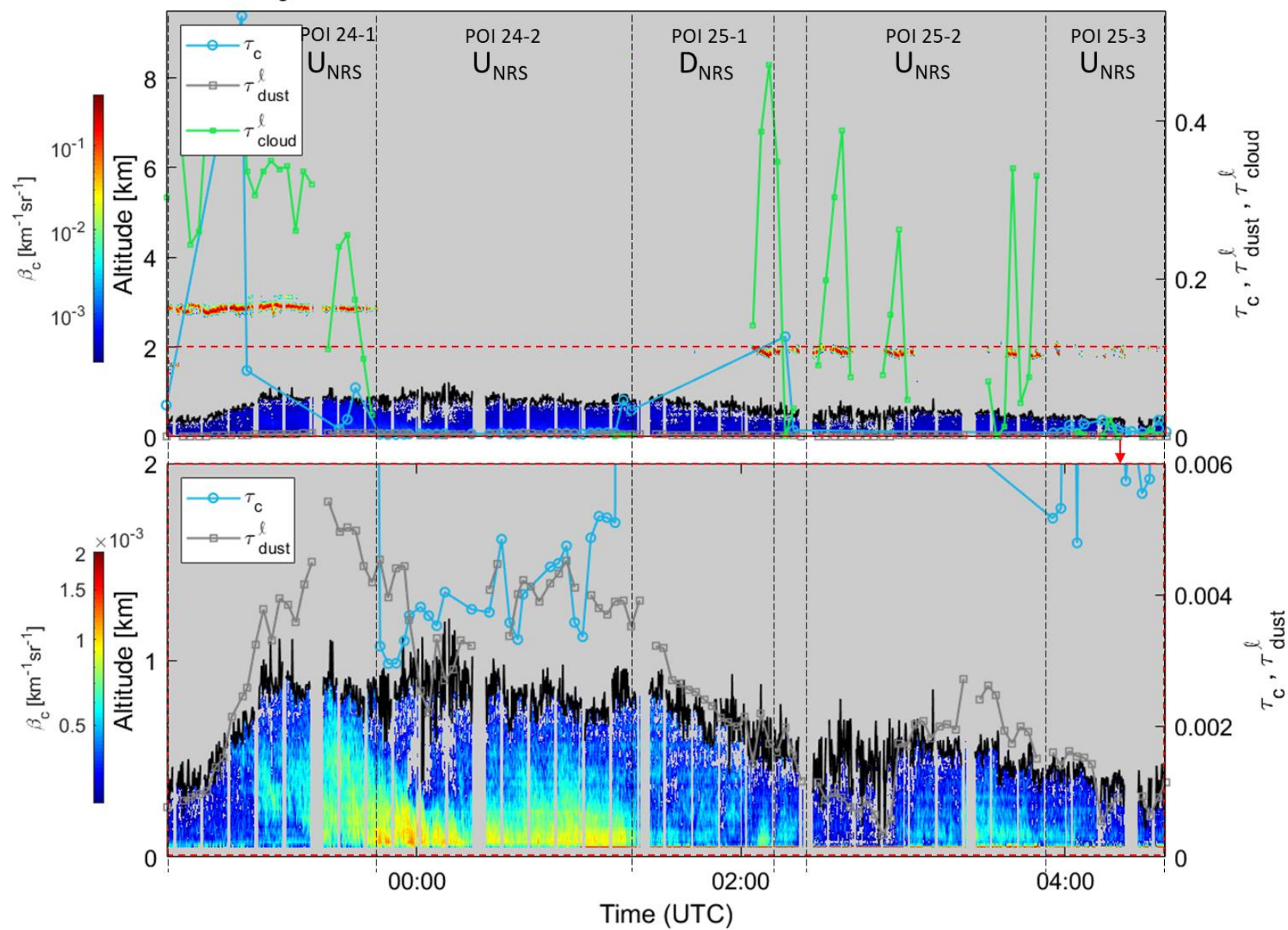
β_c - KLRs 22/23-May-2019



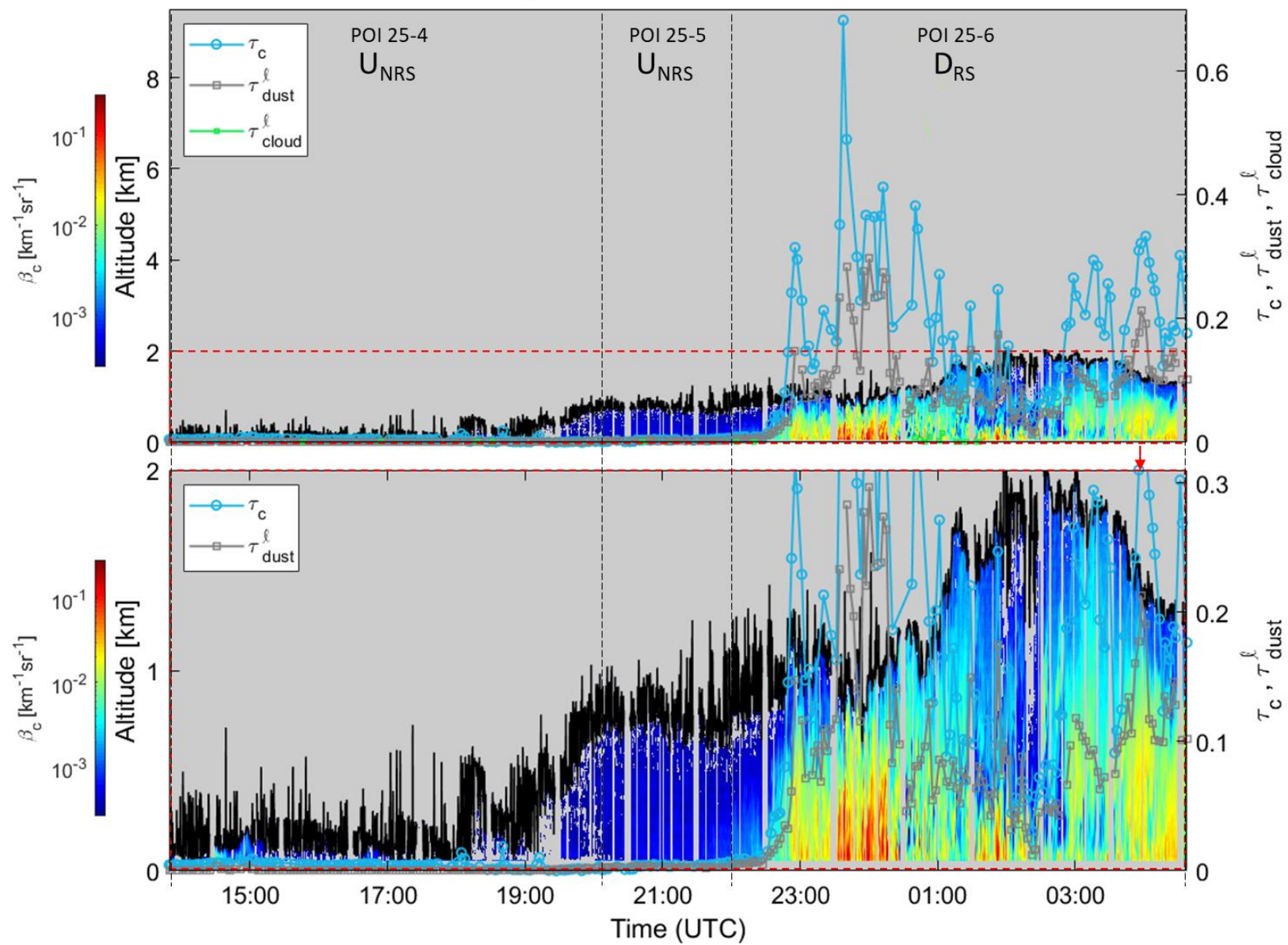
β_c - KLRS 23/24-May-2019



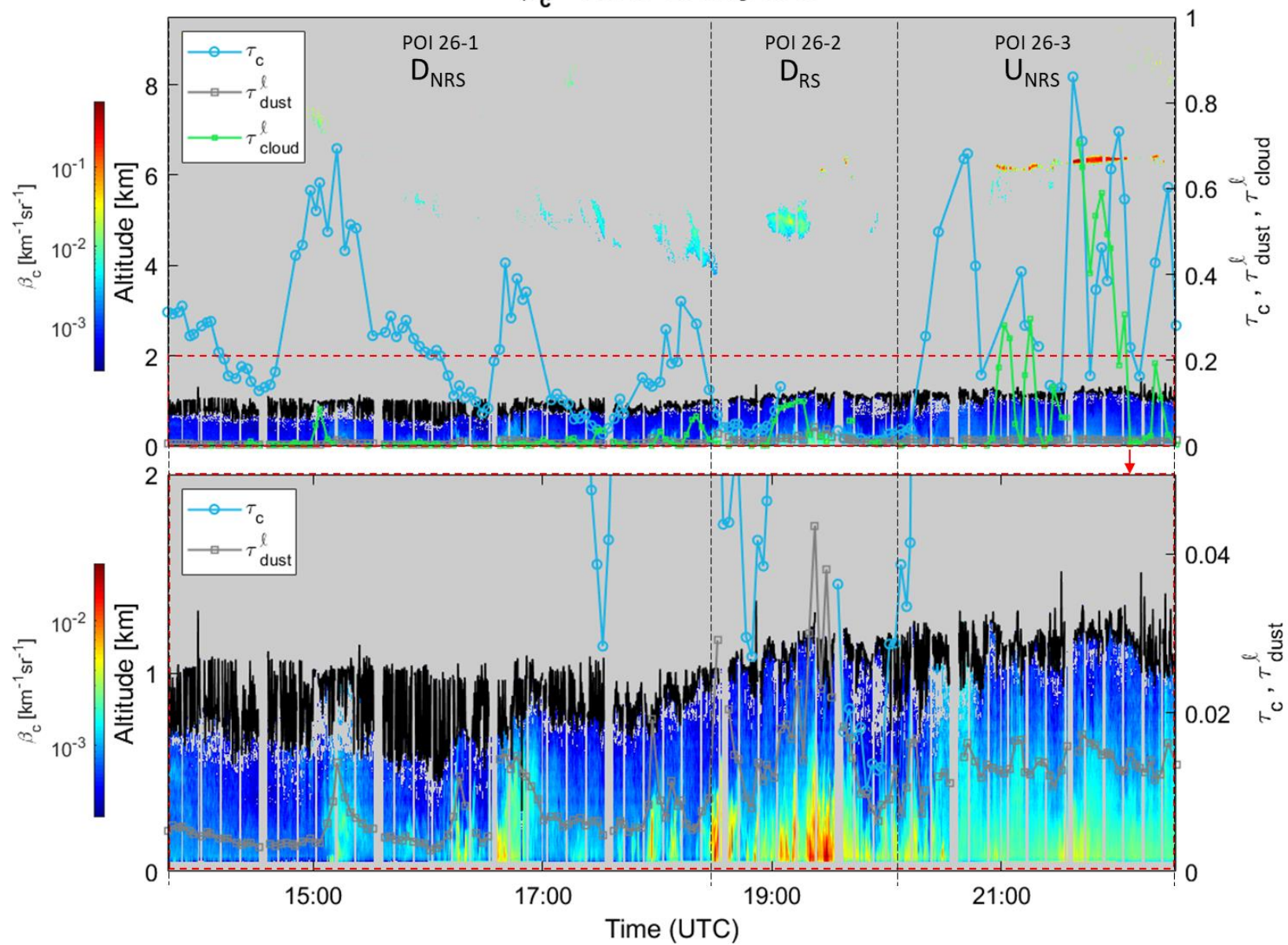
β_c - KLRS 24/25-May-2019 [late afternoon at local time on May 24]



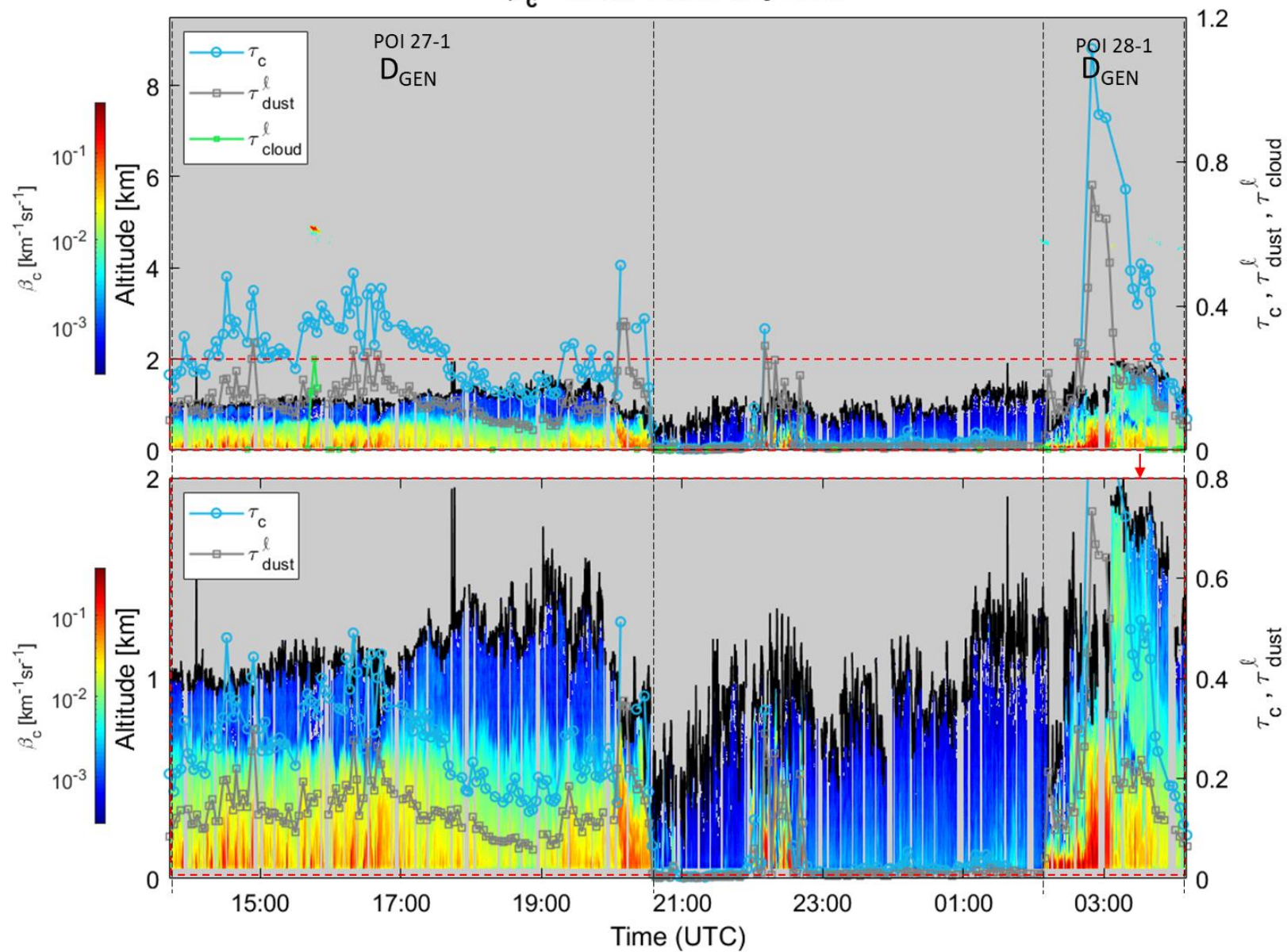
β_c - KLRS 25/26-May-2019



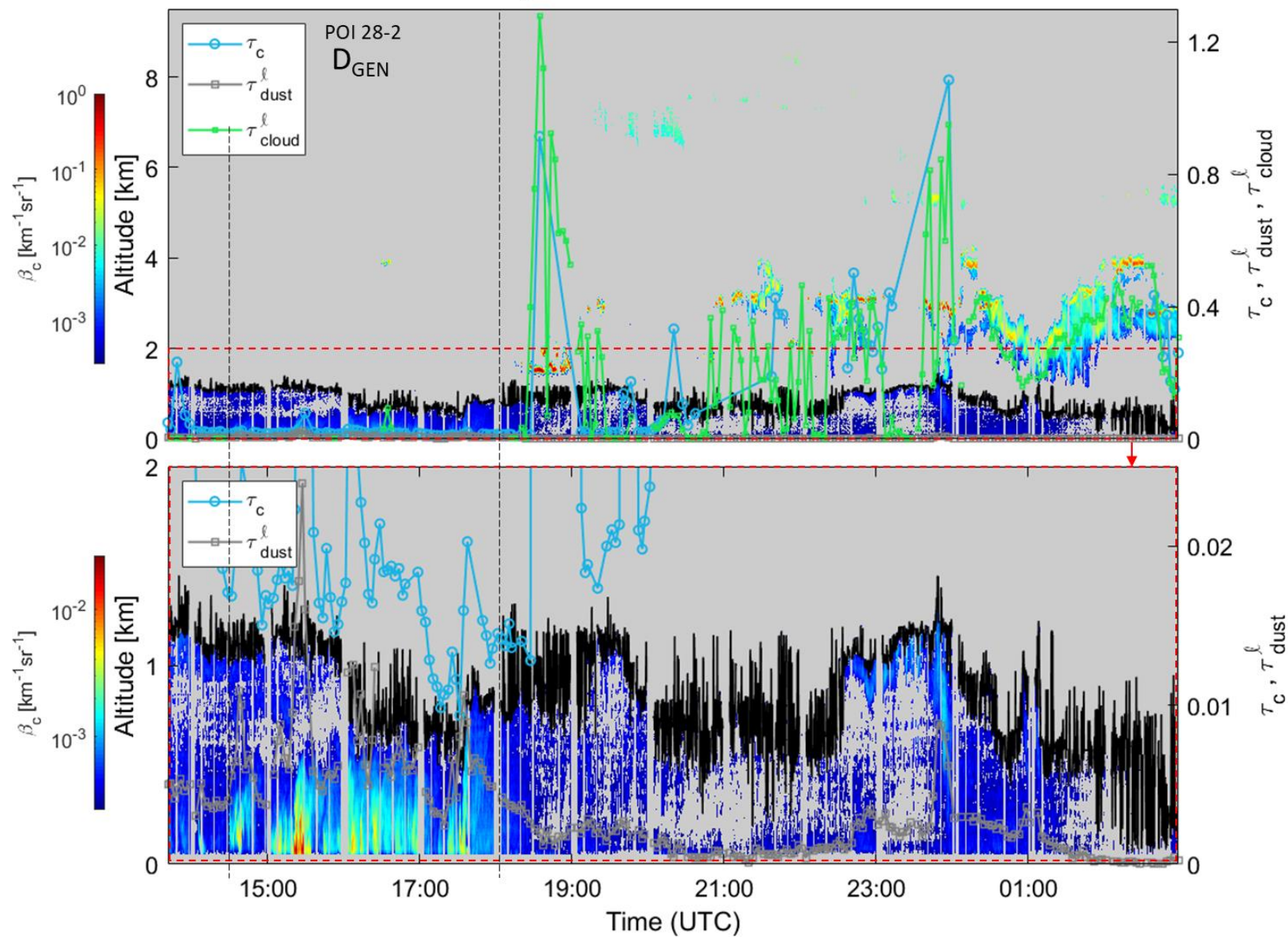
β_c - KLRS 26-May-2019



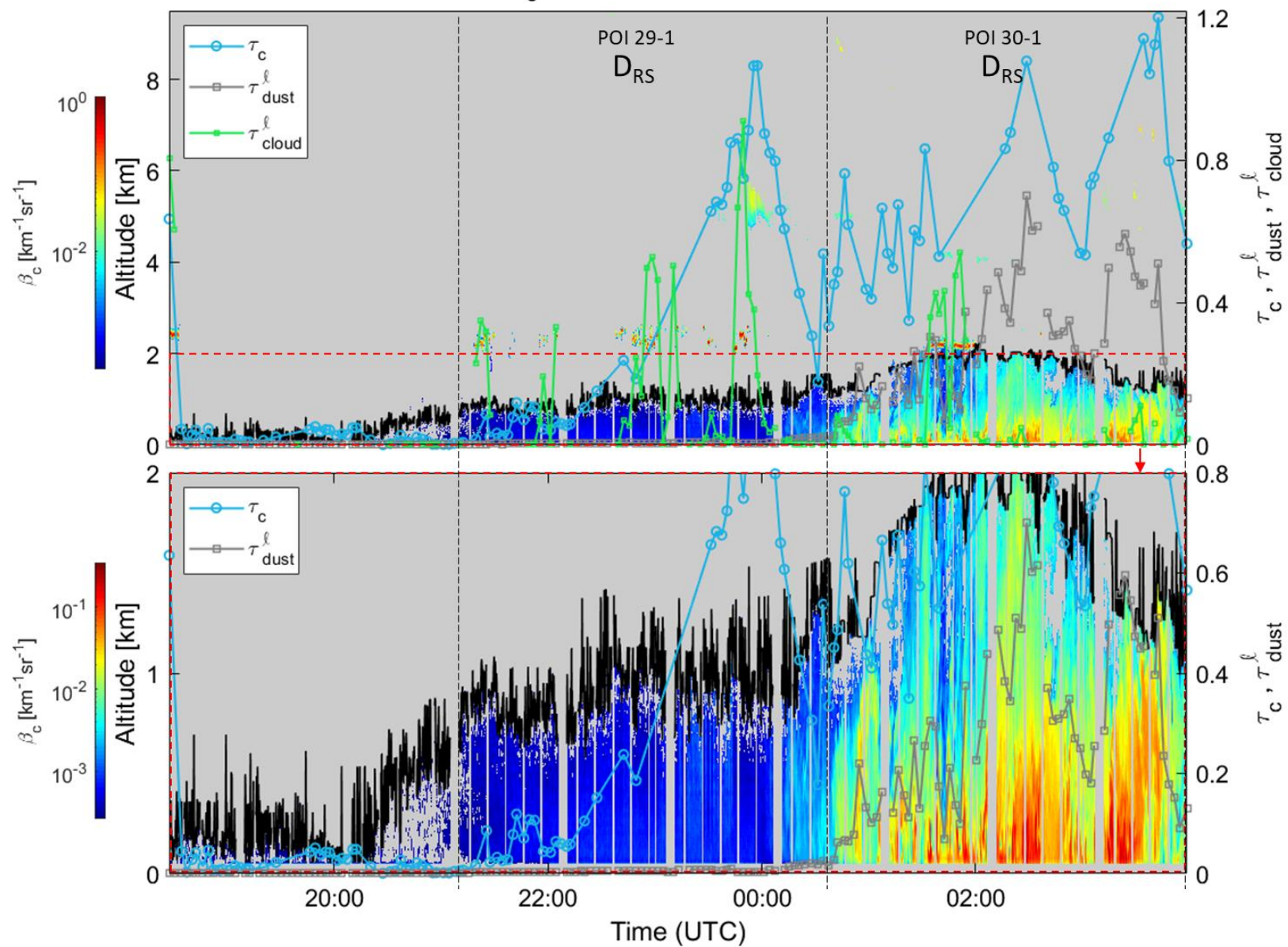
β_c - KLRs 27/28-May-2019



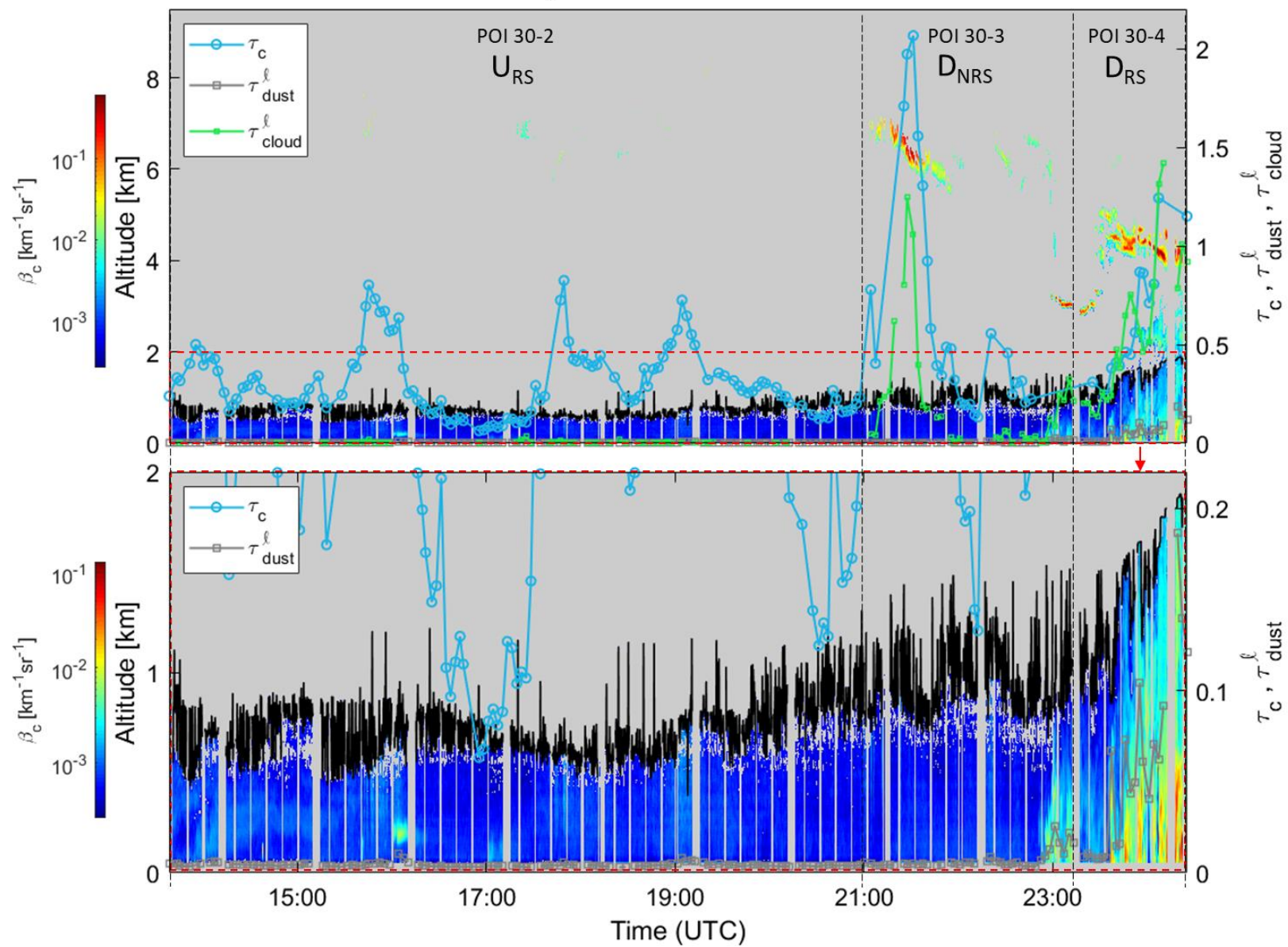
β_c - KLRs 28/29-May-2019



β_c - KLRs 29/30-May-2019



β_c - KLRS 30-May-2019



β_c - KLRS 31-May/1-June-2019

