Chapter 13

Coma profiles used for the analysis

For the analysis using the ComChem model only a subset of the observations obtained in the longterm monitoring program is used. The criteria is the quality of the measurement of the C_2 and the C_3 spatial column density profiles. The radial extension of the profile and the S/N ratio over the whole radial profile should allow to clearly identify the shape of the profile. For the set of observations used for this study this means a minimal projected radial extension of $2 \cdot 10^5$ km.

Date	r_h [AU]	Δ [AU]	Number of spectra averaged	Total int. time [sec]	$\Delta\rho$ 10^3[km]	Comment
17.8.1996	3.39	2.8	2	1800	7.86	C_3 contaminated
2.10.1996	2.86	3.0	2	1800	8.09	
23.11.1997	3.51	3.4	4	4800	18.8	not photometric
6.12.1997	3.66	3.5	6	5400	10.3	C_3 contaminated
19.12.1997	3.78	3.6	3	3600	21.6	
20.1.1998	4.13	4.0	4	3900	23.7	
21.1.1998	4.14	4.0	4	3900	11.7	C_3 contaminated
21.3.1998	4.74	4.8	3	2700	25.6	

Table 13.1: Subset of the data used for analysis with the ComChem model

Table 13.1 briefly summarizes the observations used for the analysis with ComChem. Again the mean profiles for each species in each night have been used. For detailed information on the observation see part IV and table A.1 in the appendix. The spatial column density profiles for the C_2 and the C_3 emissions are shown in figures 16.9 and 16.10. As has been pointed out already, the observations obtained at the Danish telescope suffer from light contamination (see figure 7.1 in part IV). Unfortunately this effect is worst at the position of the C_3 emission. The effect on the profiles can be seen in the plots for the nights 17.8.1996, 6.12.1997, and 21.1.1998. For this reason the C_3 profiles for these nights can be used only inside $2 \cdot 10^5$km projected nucleocentric distance. For the same reason the observations obtained at larger heliocentric distances pre-perihelion are not included in this study.
The ComChem model is like the Haser model a one-dimensional model. Sunward and tailward profiles have been treated separately to obtain an upper limit on the inhomogeneities in the abundance of the C_2 and C_3 parent molecules (see section 19).