

## Appendix A

The figures given in this section presents spectra of water vapor broadened by air. The spectra cover the region from 1180 to 4320  $\text{cm}^{-1}$ . The following table lists the experimental conditions of the laboratory runs used to generate the observed spectra. The observed spectra were obtained with the Fourier transform spectrometer located in the McMath solar facility at the Kitt Peak National Observatory. Computed spectra overlay the observed spectra and above each two spectra are residual plots giving percent differences between the observed and fitted spectra. The water vapor computed spectra were derived from the spectral parameters given in the compilation, Sisam.H2O. In some spectral regions, the observed spectra contain  $\text{CO}_2$  features and were included in the computed spectra using the parameters given in HITRAN2000.

Run	spectral resolutions ( $\text{cm}^{-1}$ )	H <sub>2</sub> O Pressure (Torr)	Path (m)	air Pressure (Torr)
J116.10	0.0055	2.82	433	397
J116.12	0.0055	2.97	73	397
J130.6	0.0055	2.50	1.5	348
J119.12	0.011	3.0	25	397
J119.13	0.011	3.0	73	397
J119.16	0.011	3.0	433	397
J126.16	0.011	2.00	1.5	300

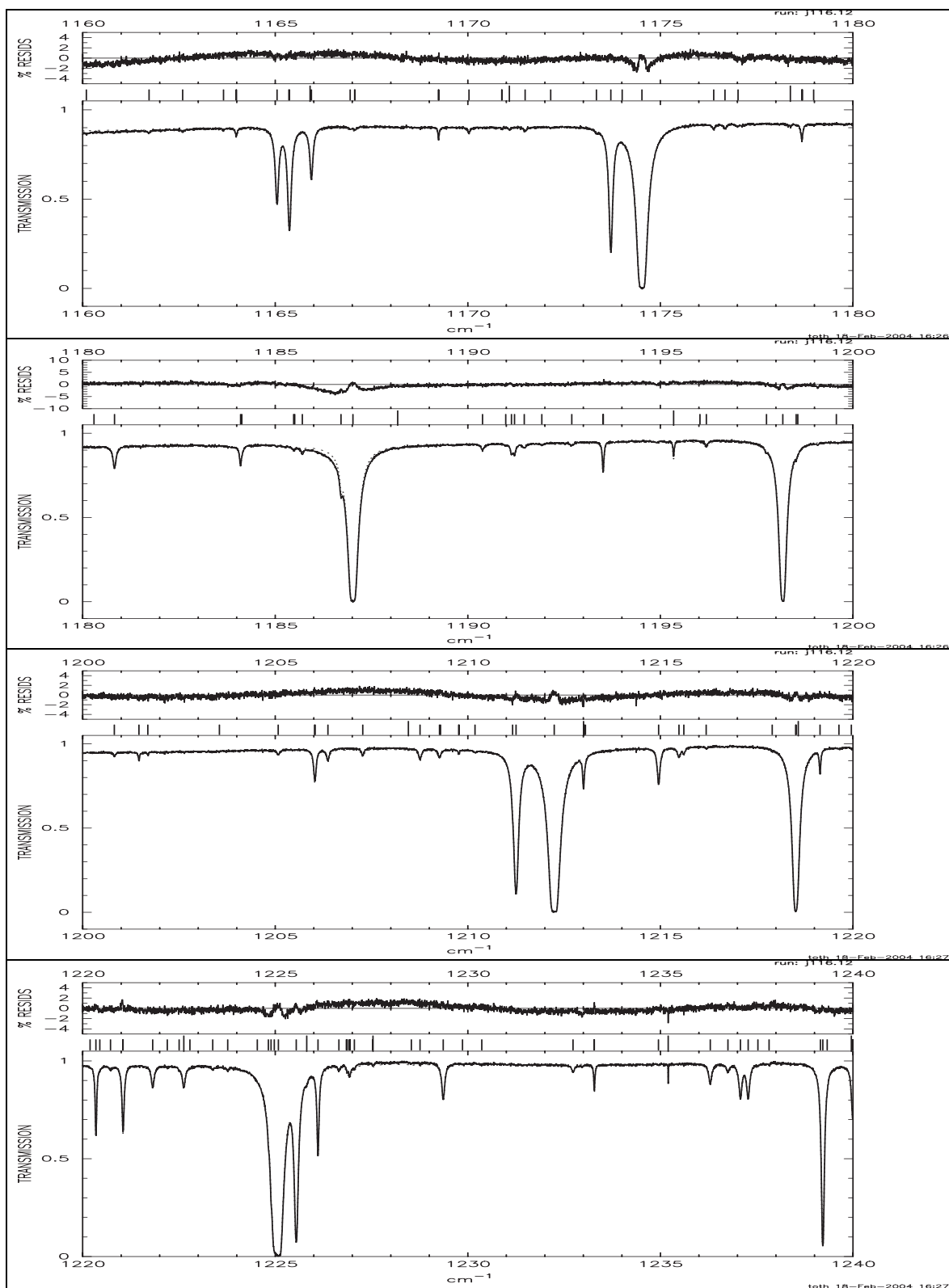


Figure A1. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J116.12

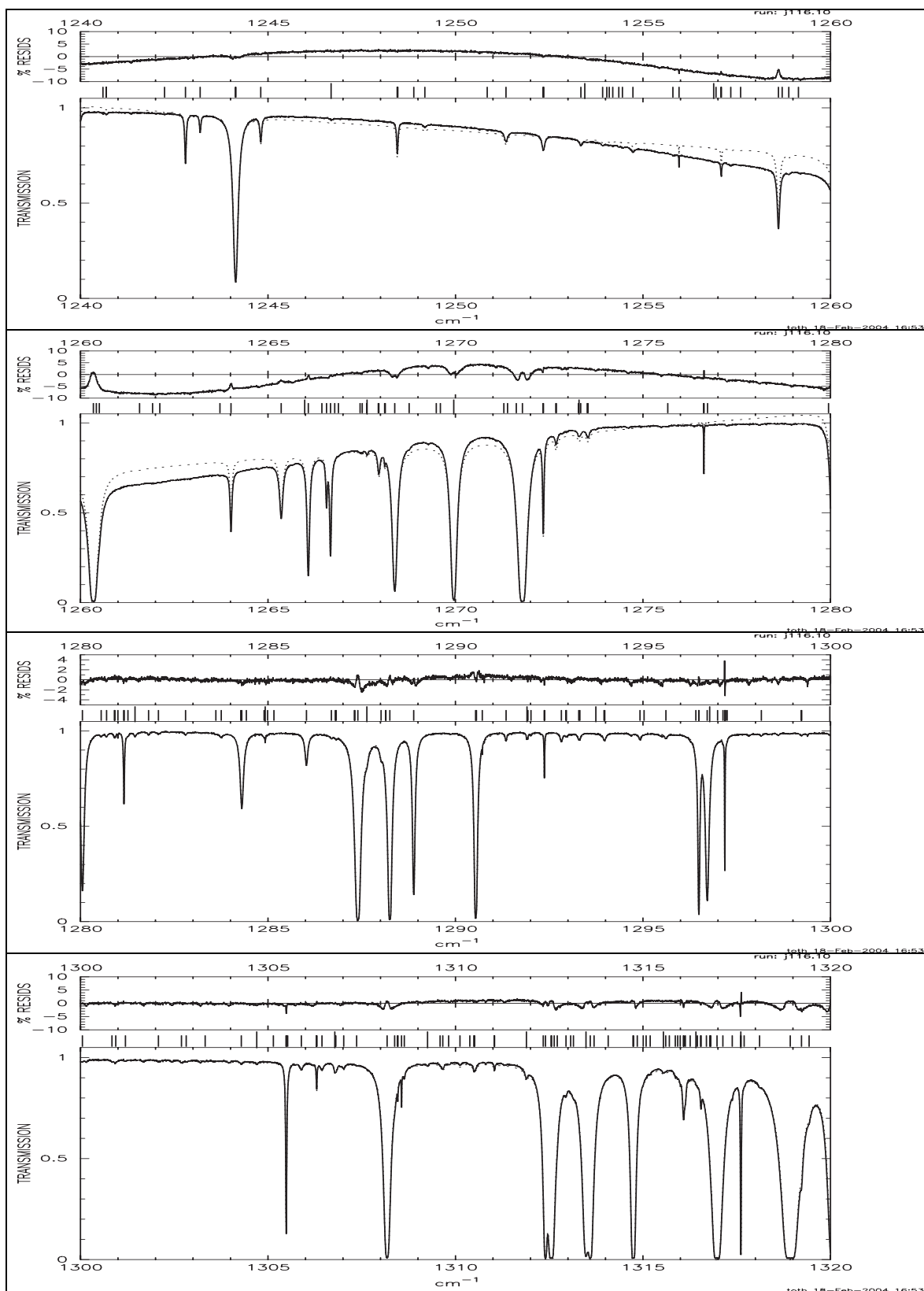


Figure A2. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J116.10

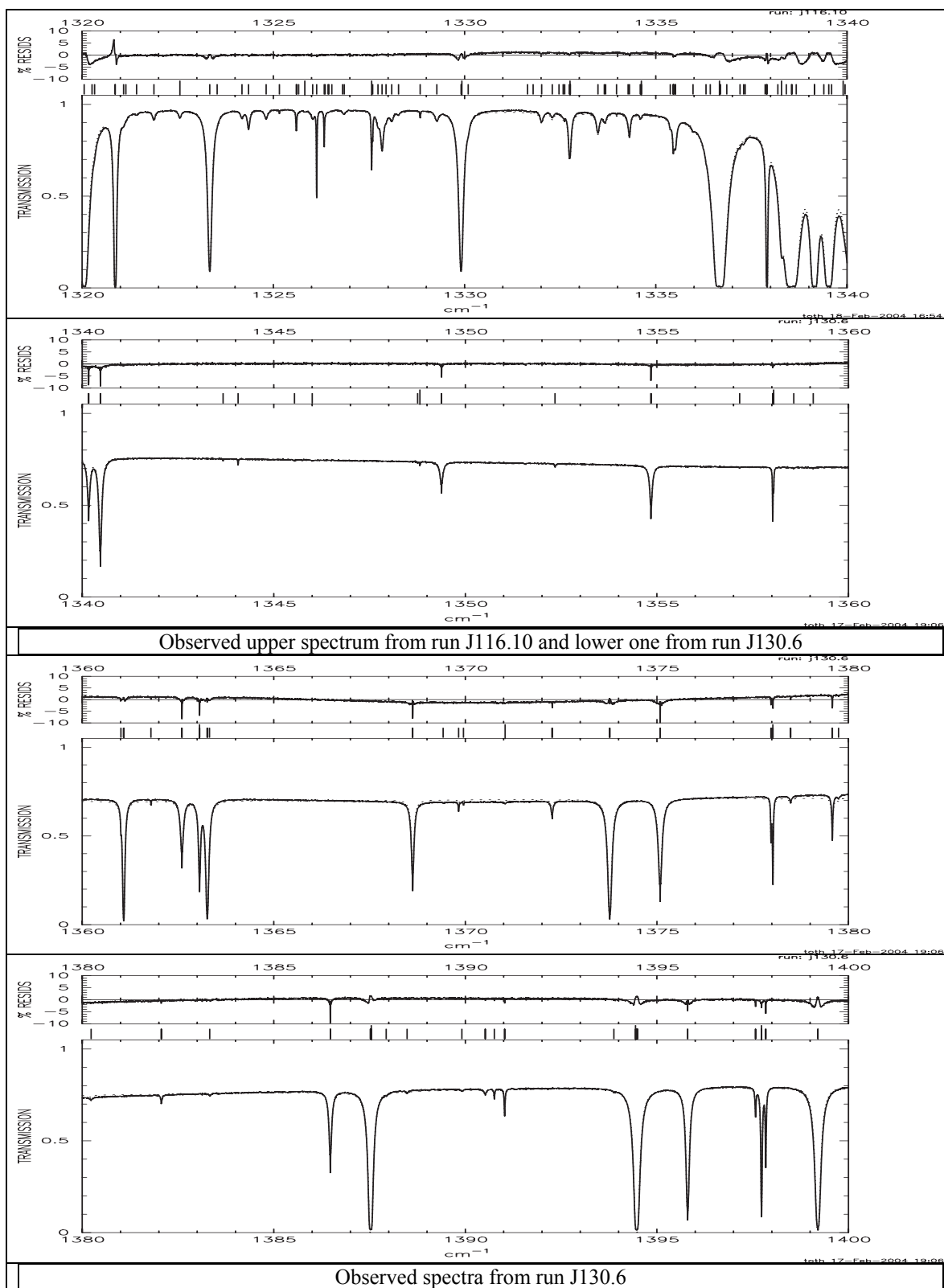


Figure A3. Observed and computed spectra of H<sub>2</sub>O

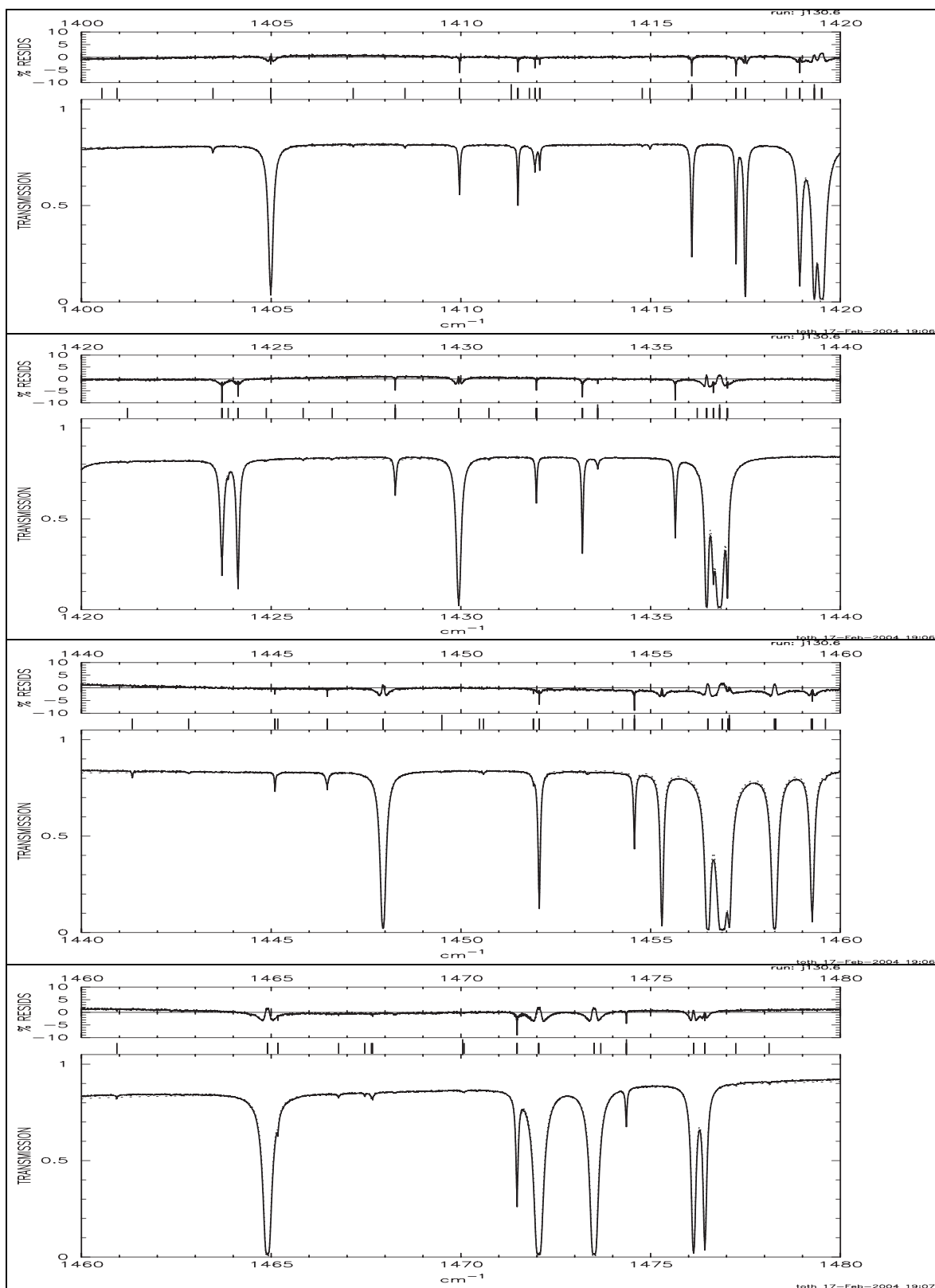


Figure A4. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J130.6

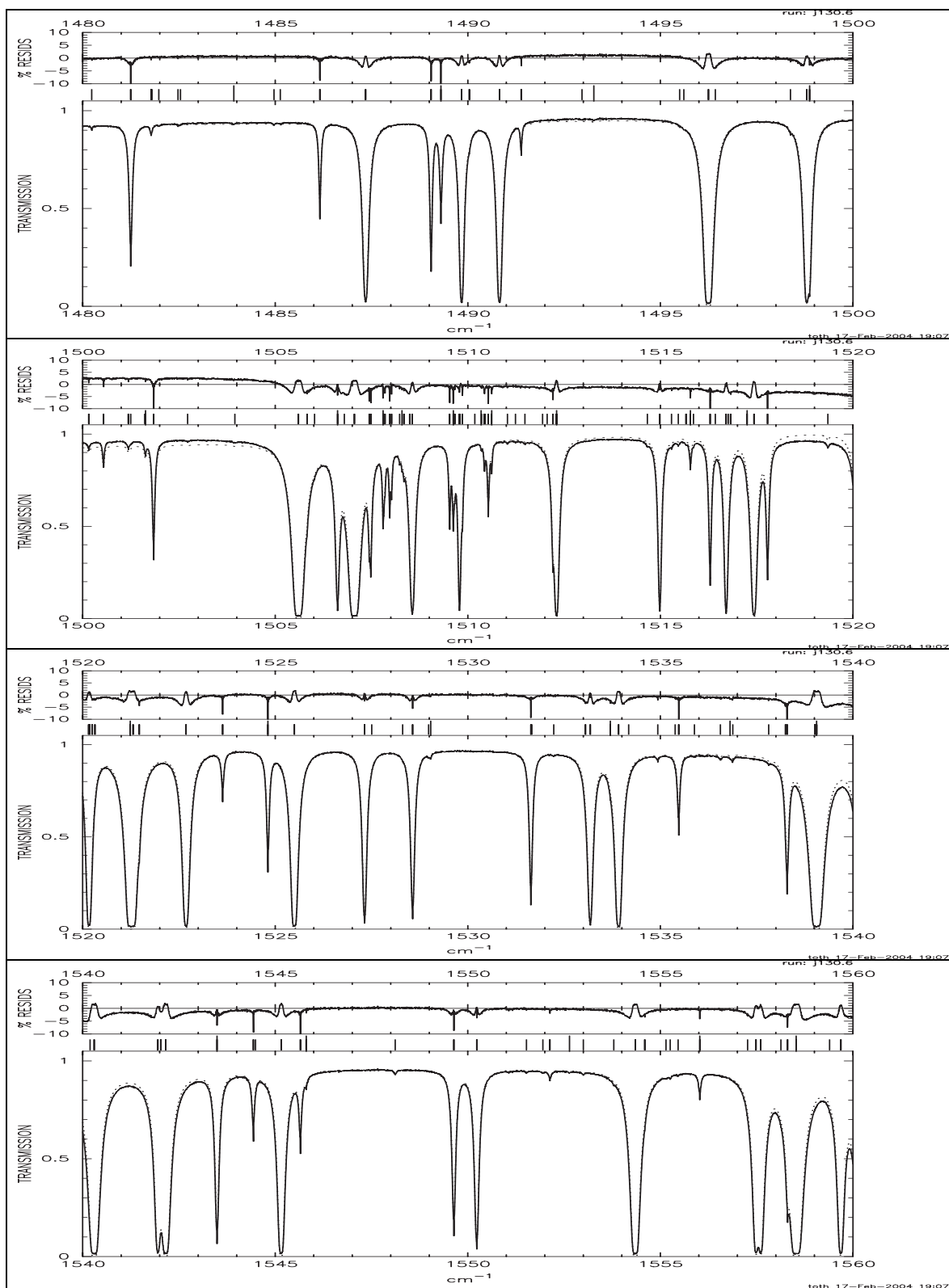


Figure A5. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J130.6

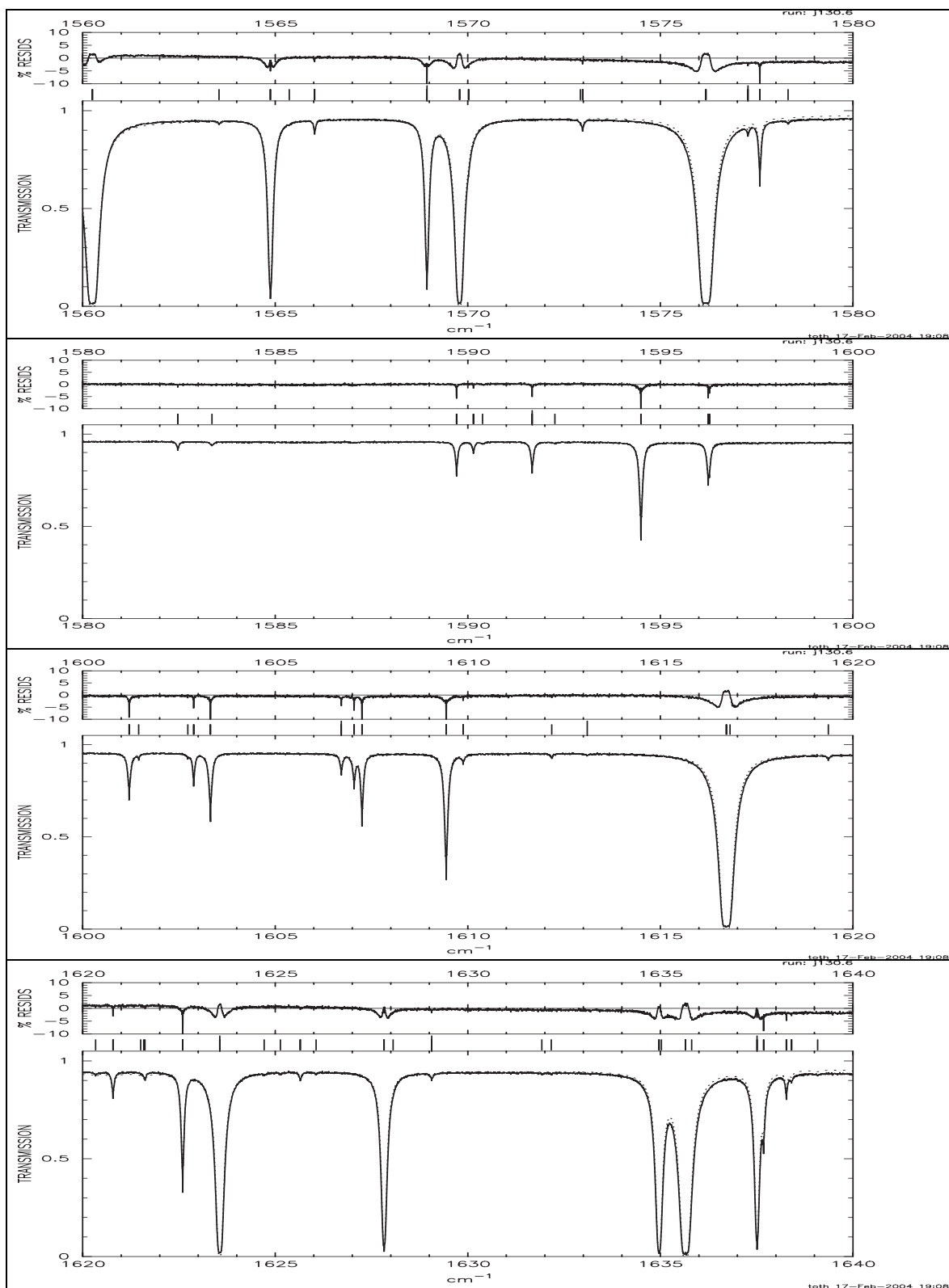


Figure A6. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J130.6

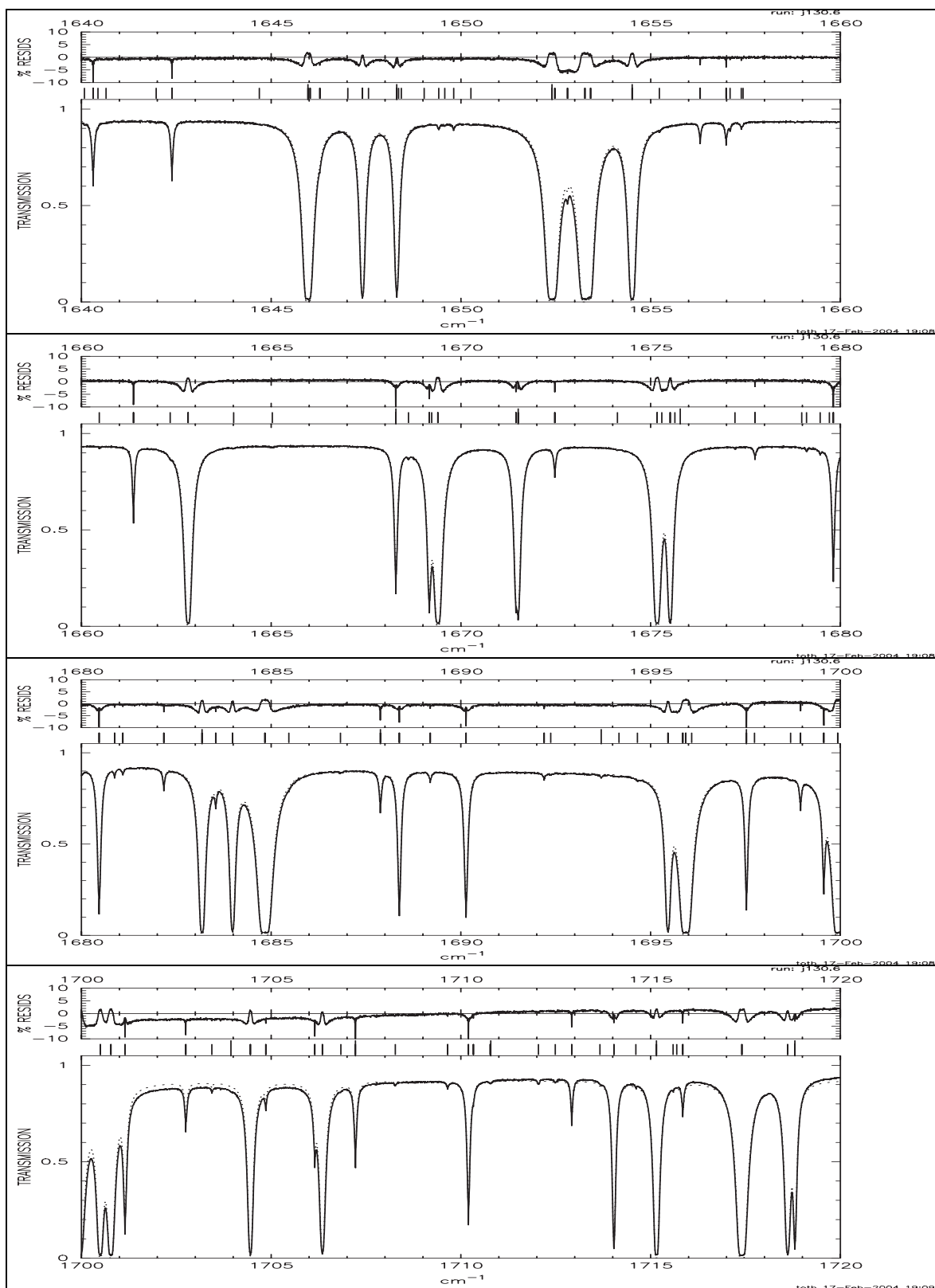


Figure A7. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J130.6



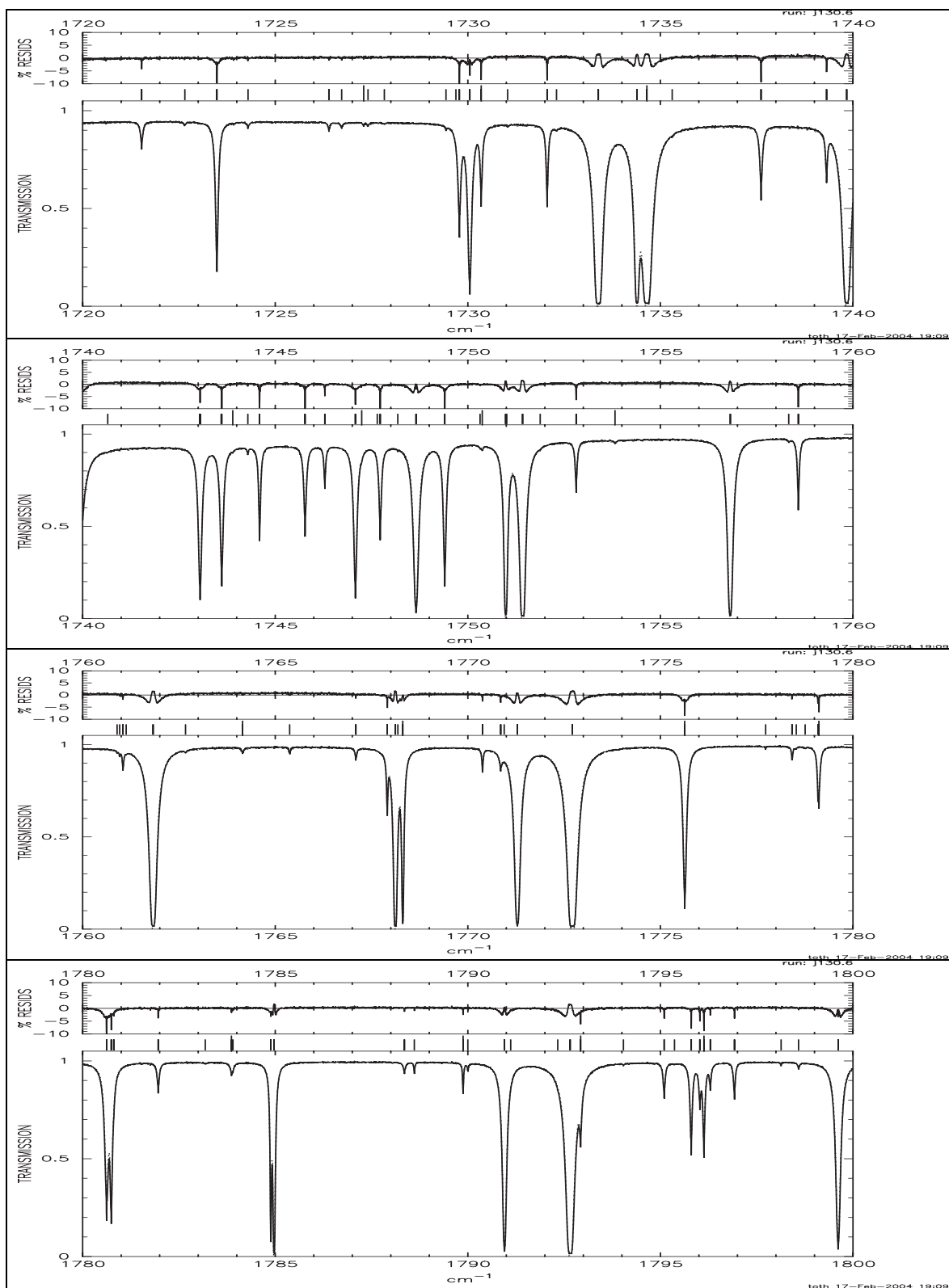


Figure A8. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J130.6



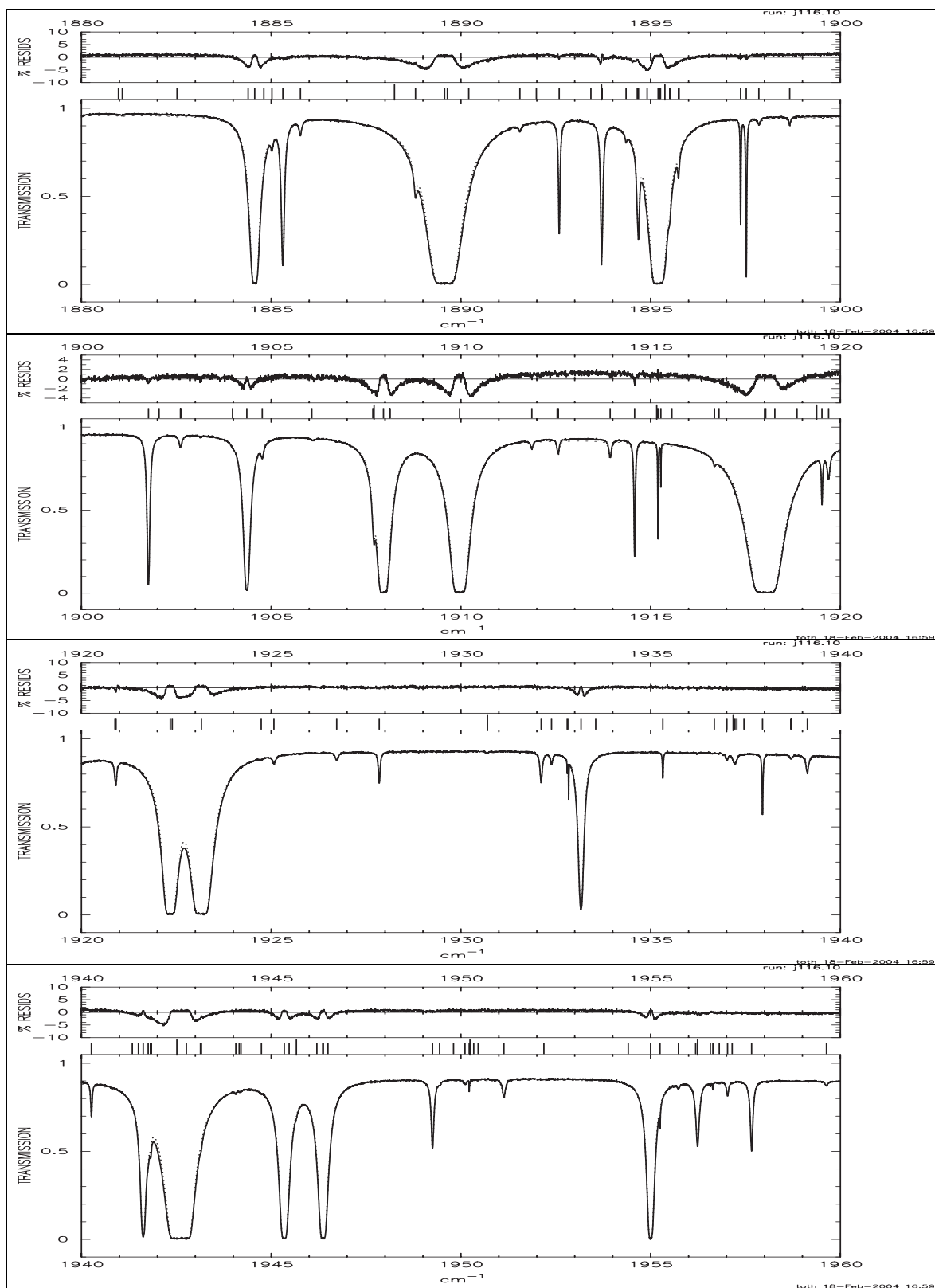


Figure A10. Observed and computed spectra of  $\text{H}_2\text{O}$ . Observed spectra from run J116.10

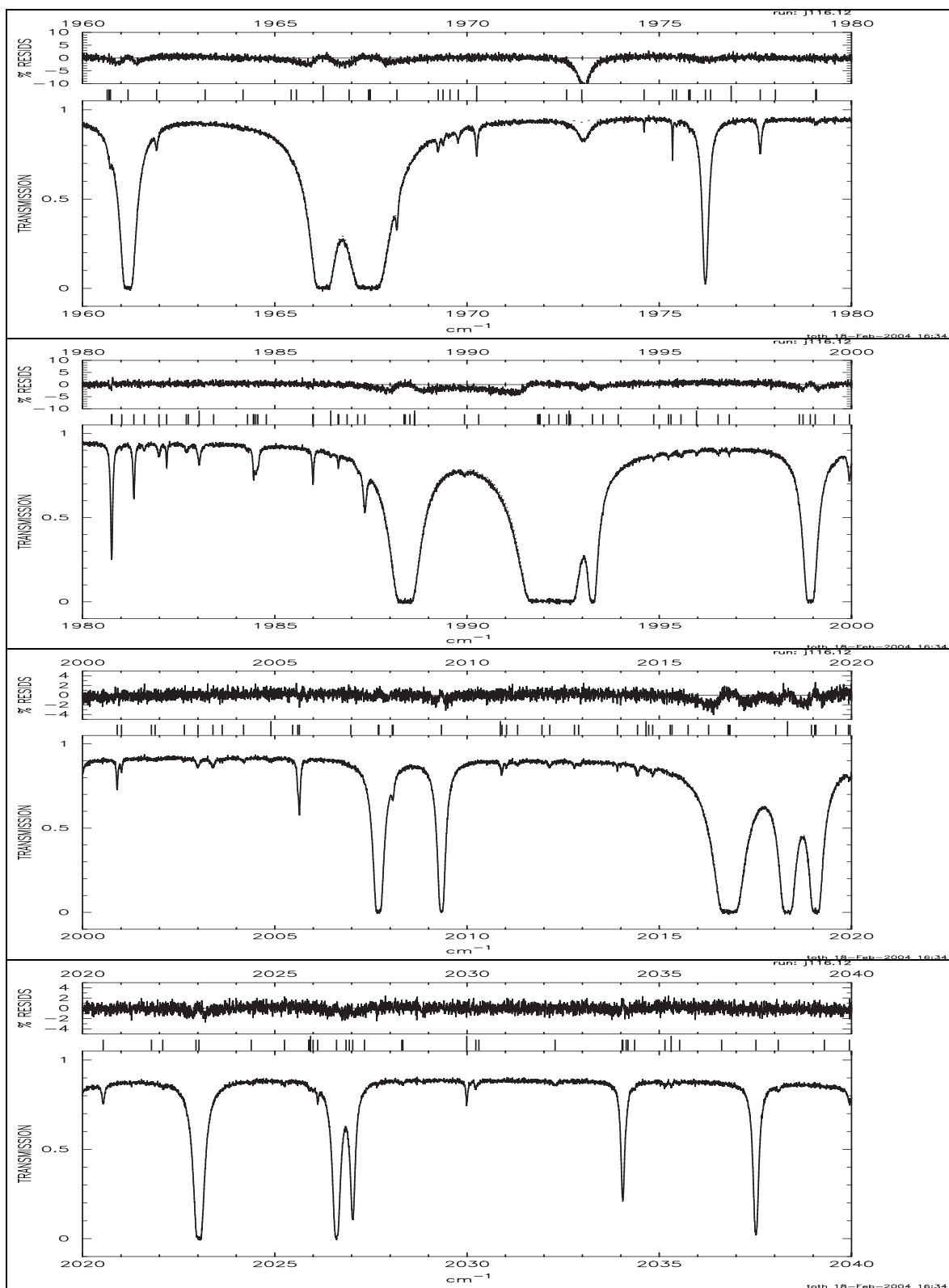


Figure A11. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J116.12. Instrument/filter effect located at about 1973 cm<sup>-1</sup>.

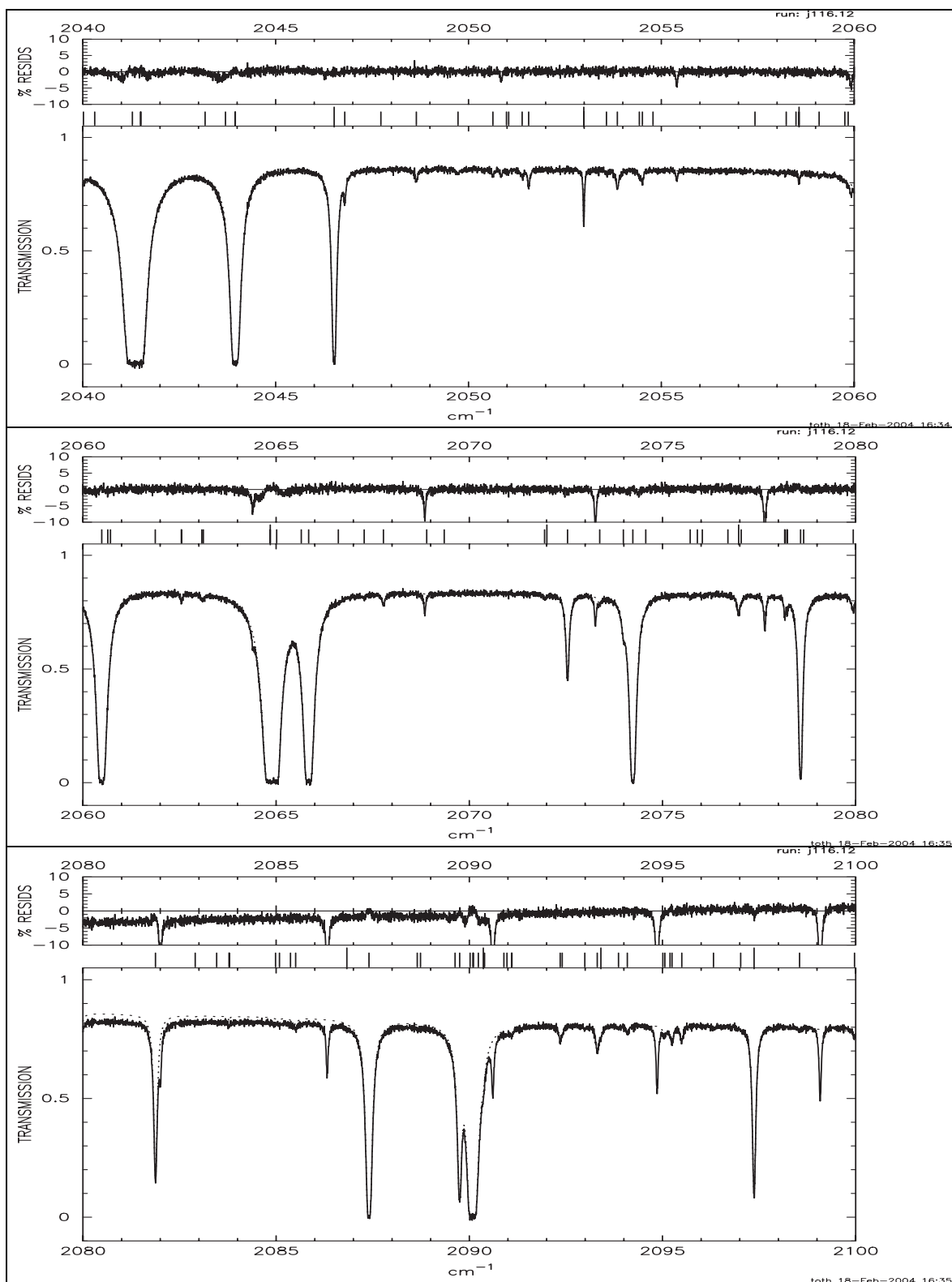


Figure A12. Observed and computed spectra of  $\text{H}_2\text{O}$ . Observed spectra from run J116.12. Also observed in the spectra, but not computed, are absorptions due to CO.

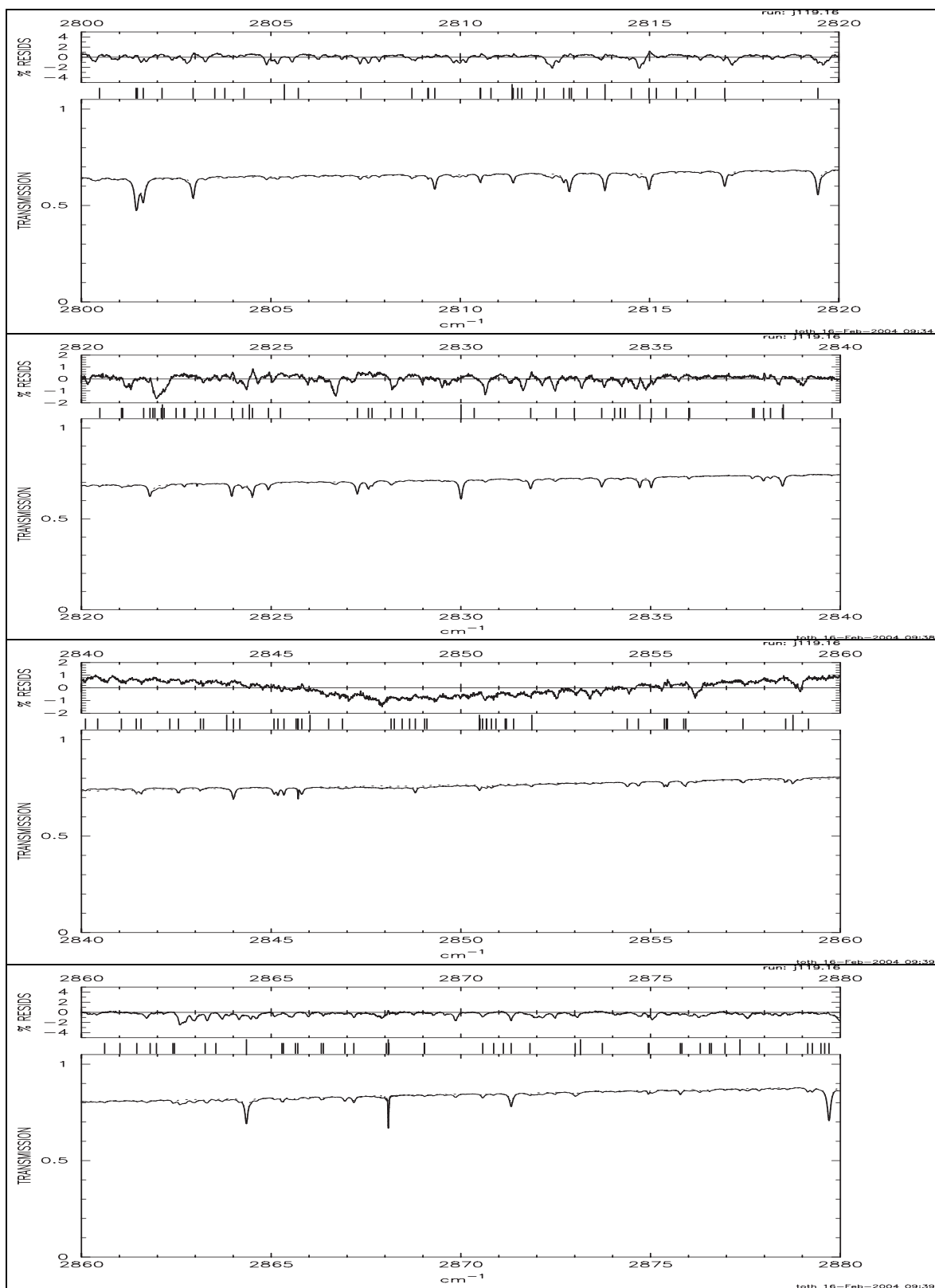


Figure A13. Observed and computed spectra of  $\text{H}_2\text{O}$ . Observed spectra from run J119.16

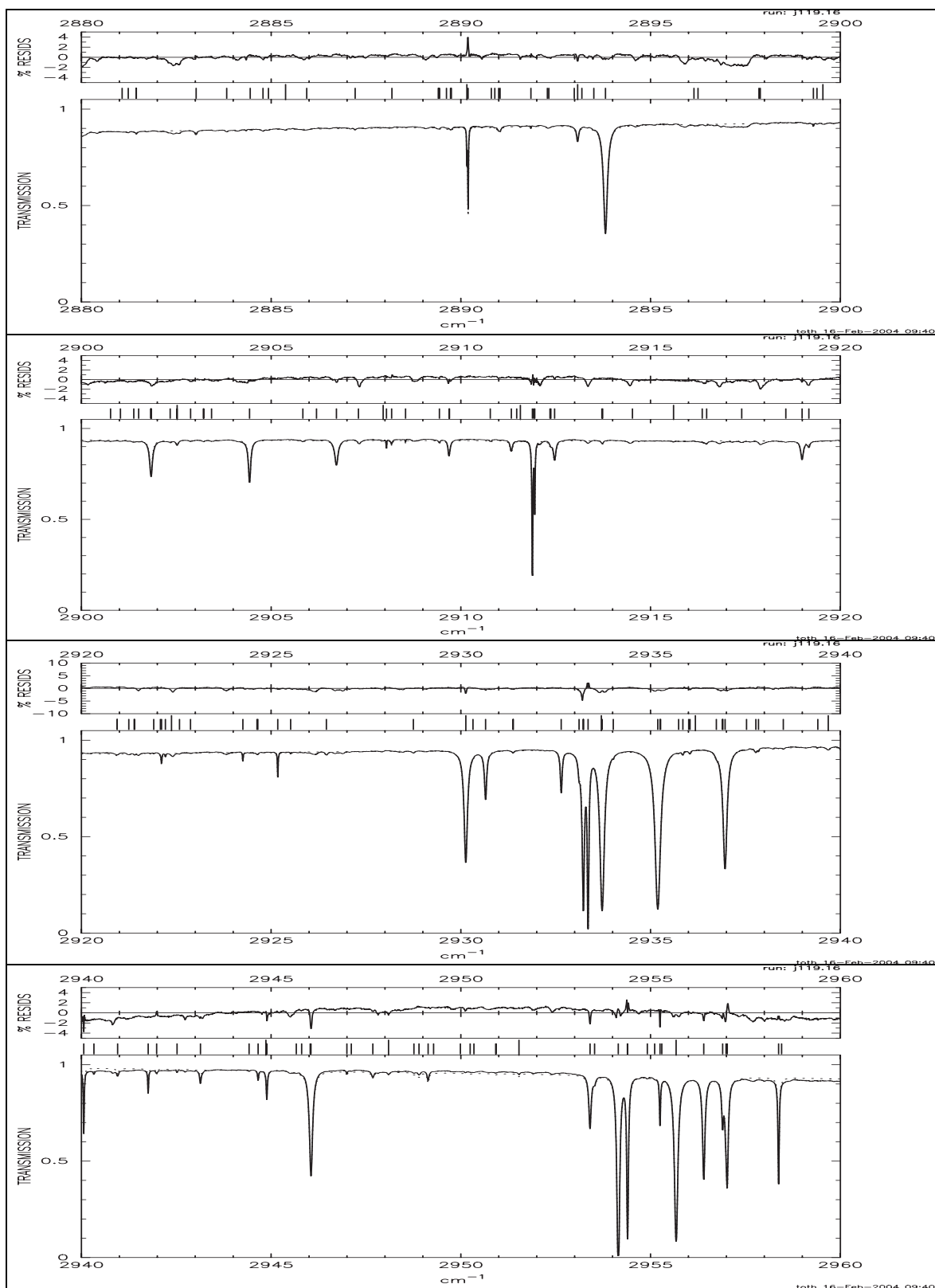


Figure A14. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16

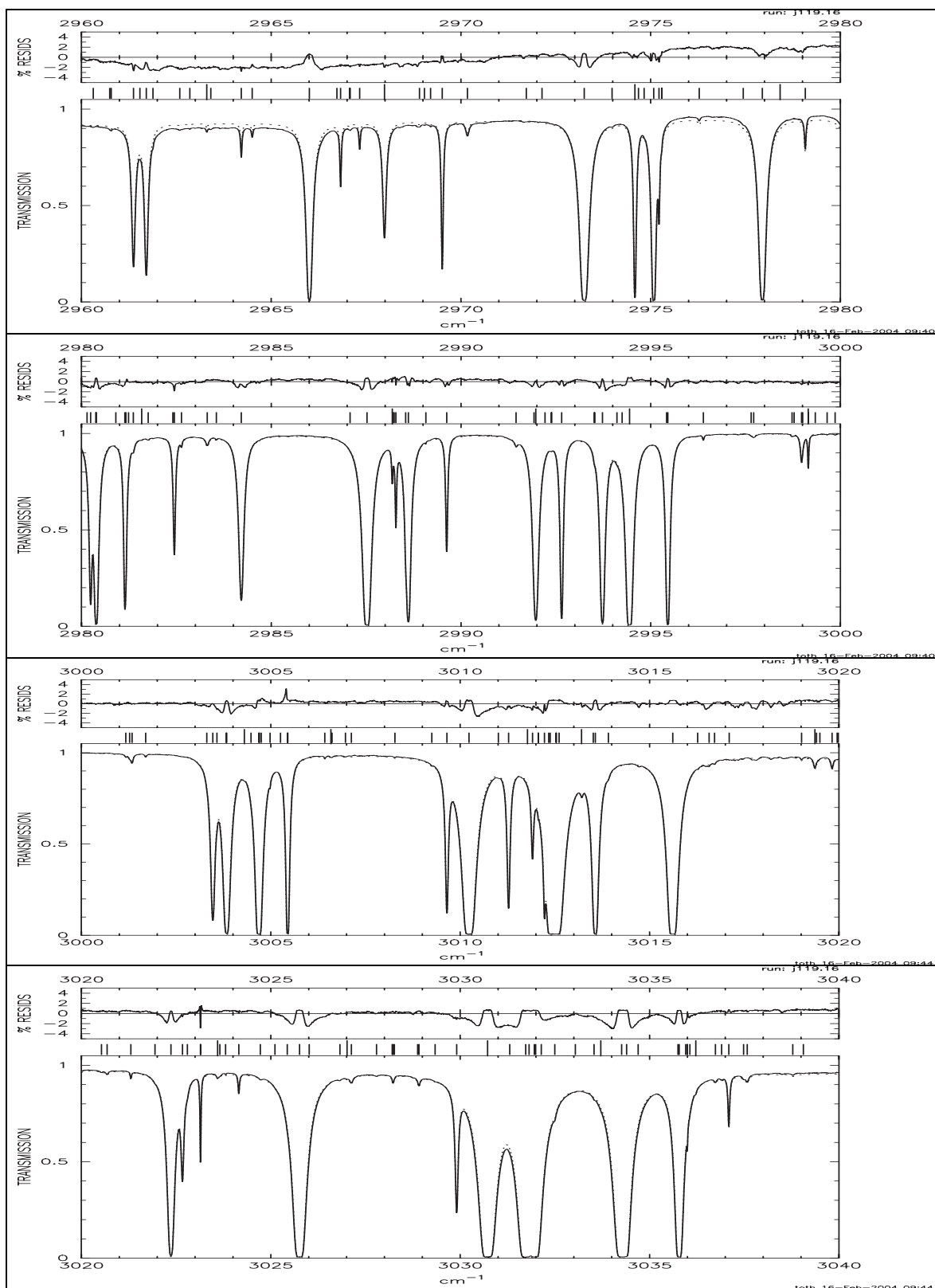


Figure A15. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16



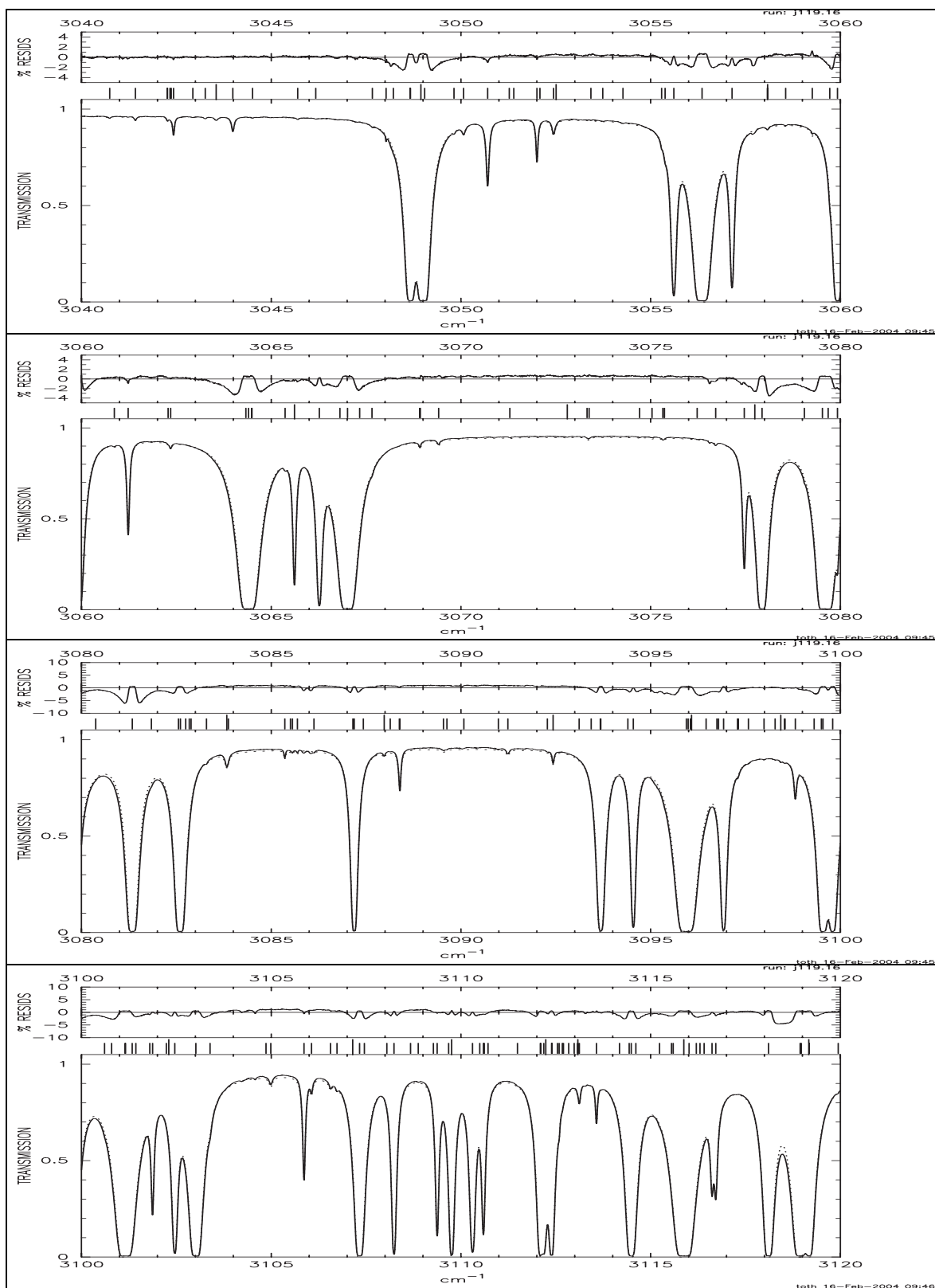


Figure A16. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16

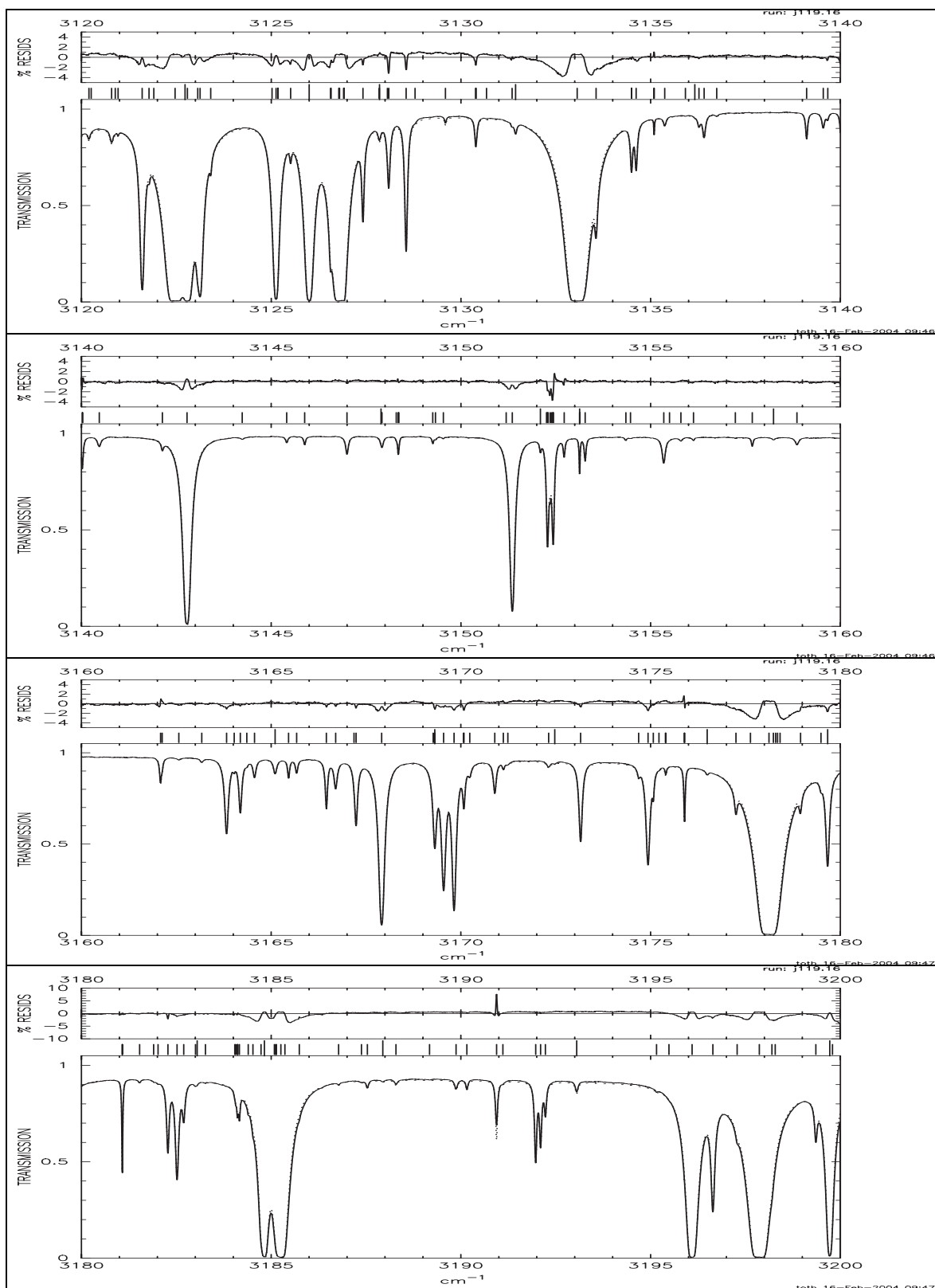


Figure A17. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16

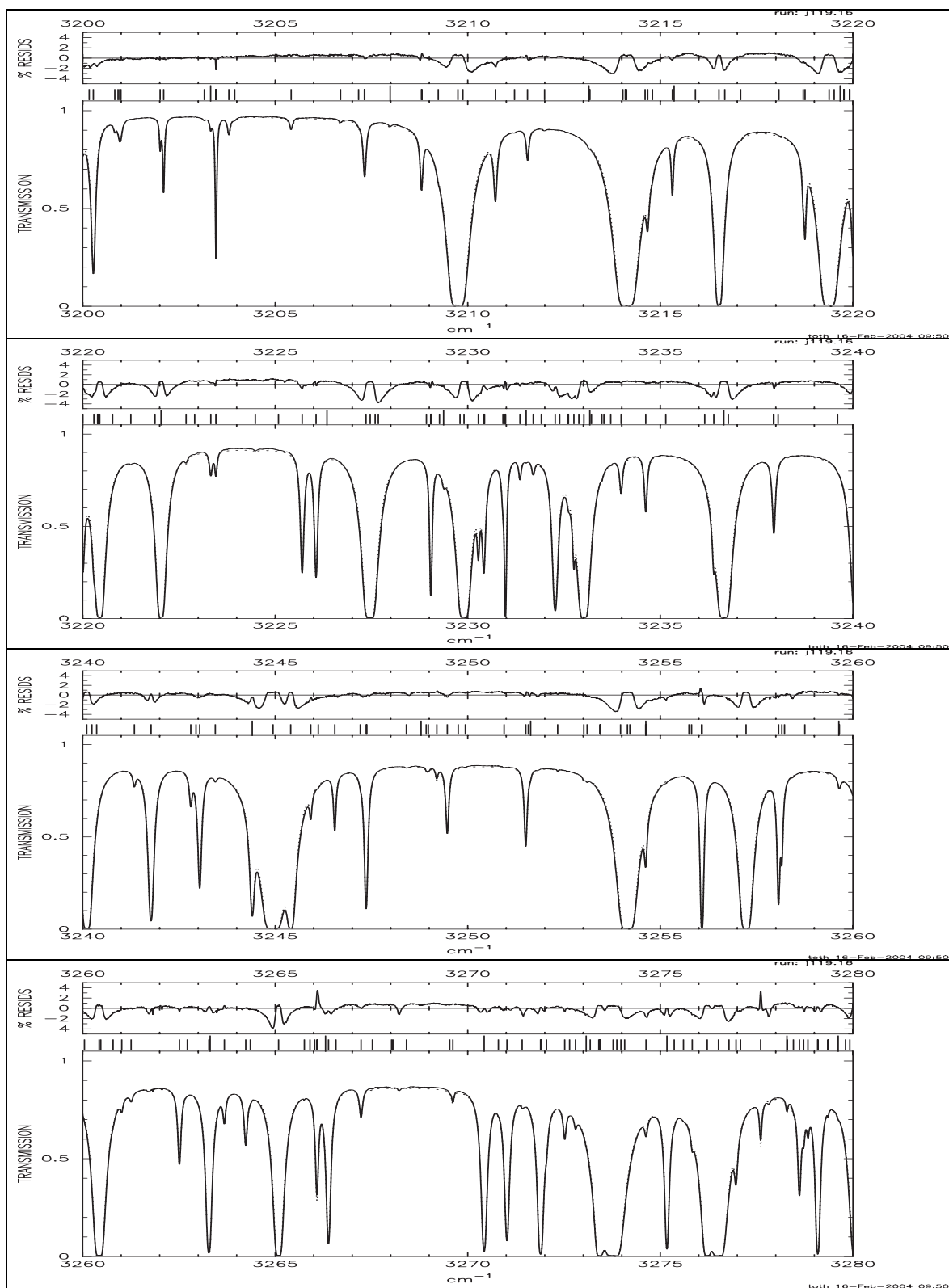


Figure A18. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16

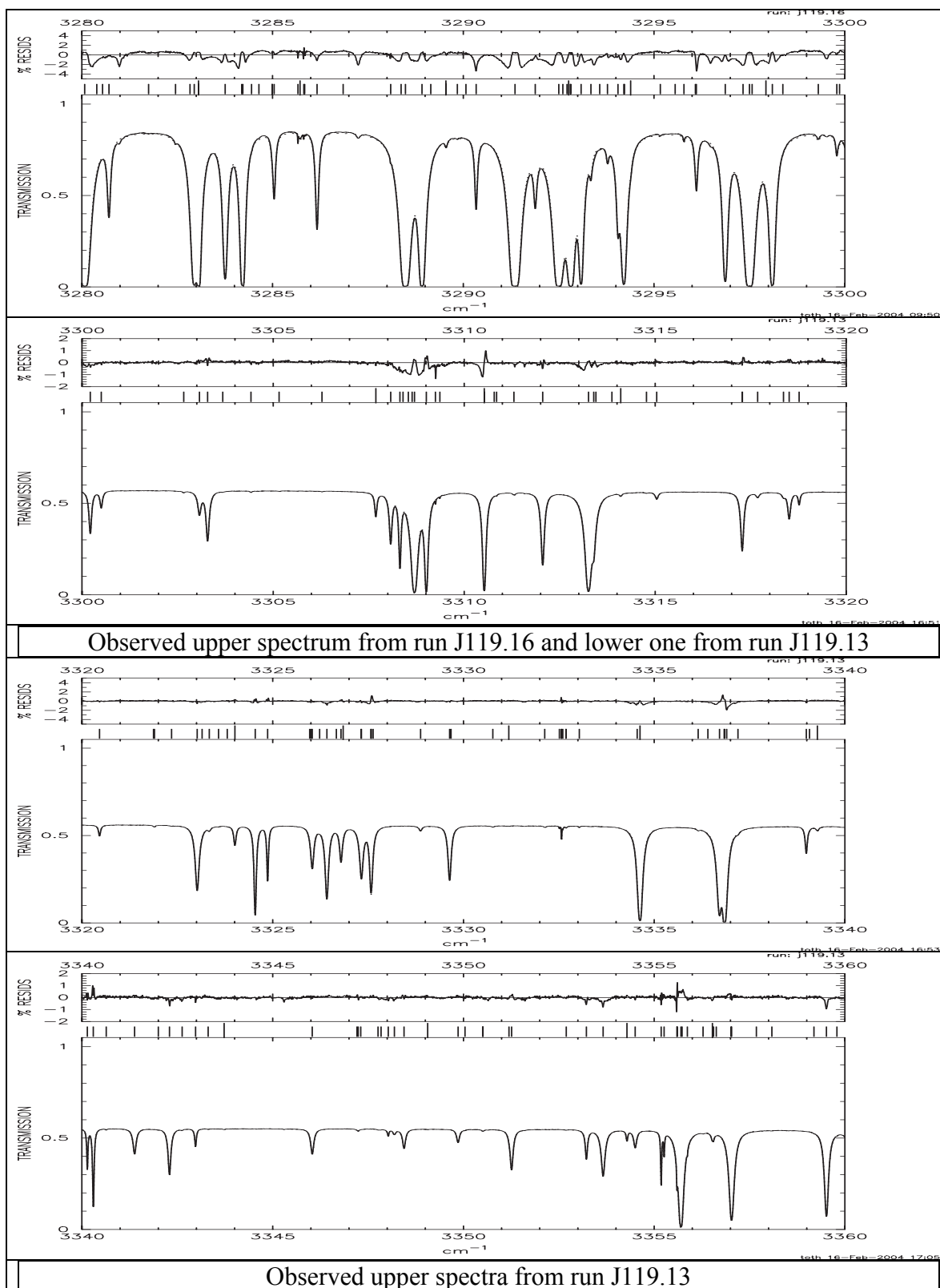


Figure A19. Observed and computed spectra of  $\text{H}_2\text{O}$ .

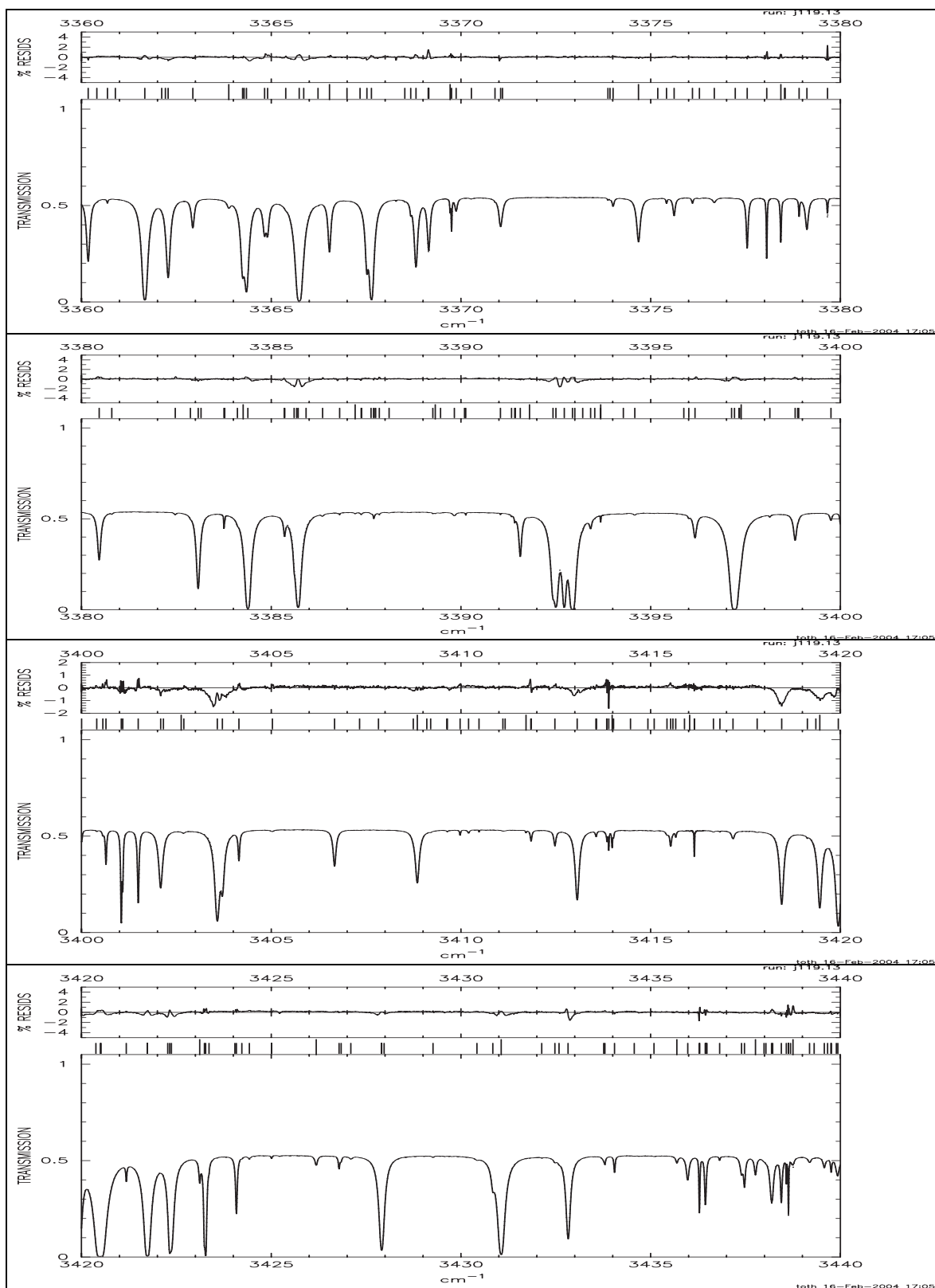


Figure A20. Observed and computed spectra of  $\text{H}_2\text{O}$ . Observed spectra from run J119.13

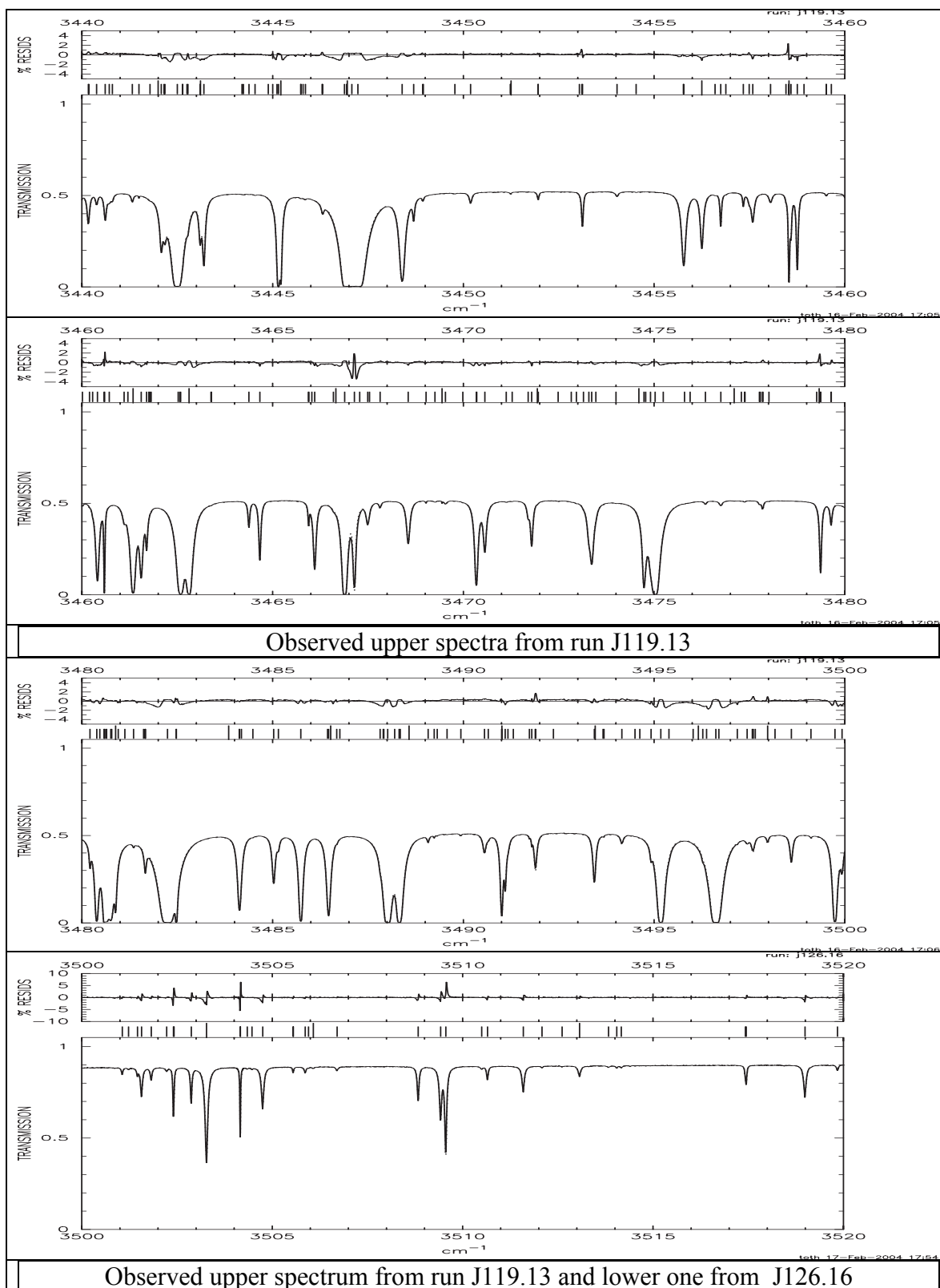


Figure A21. Observed and computed spectra of H<sub>2</sub>O.

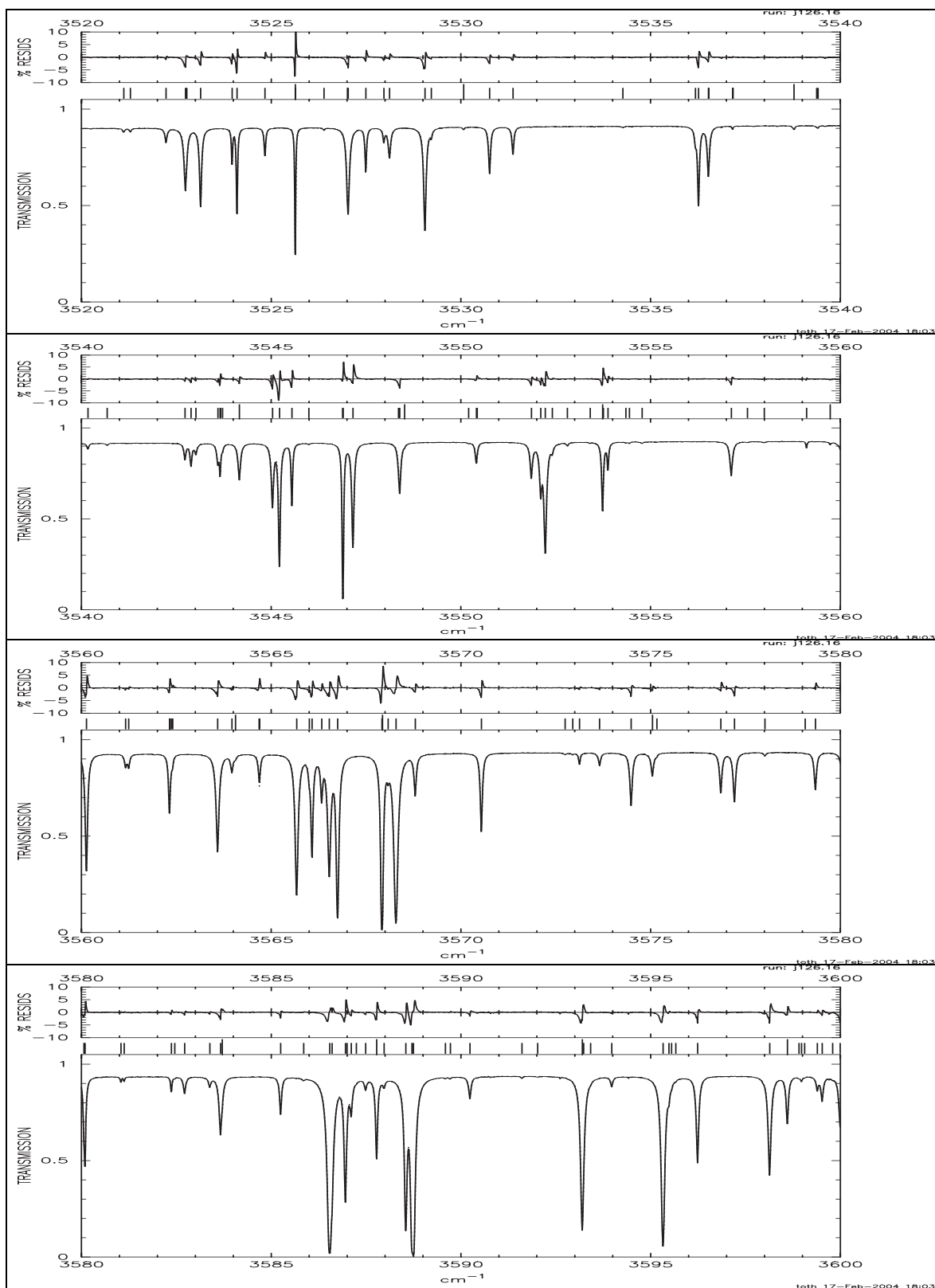


Figure A22. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J126.16

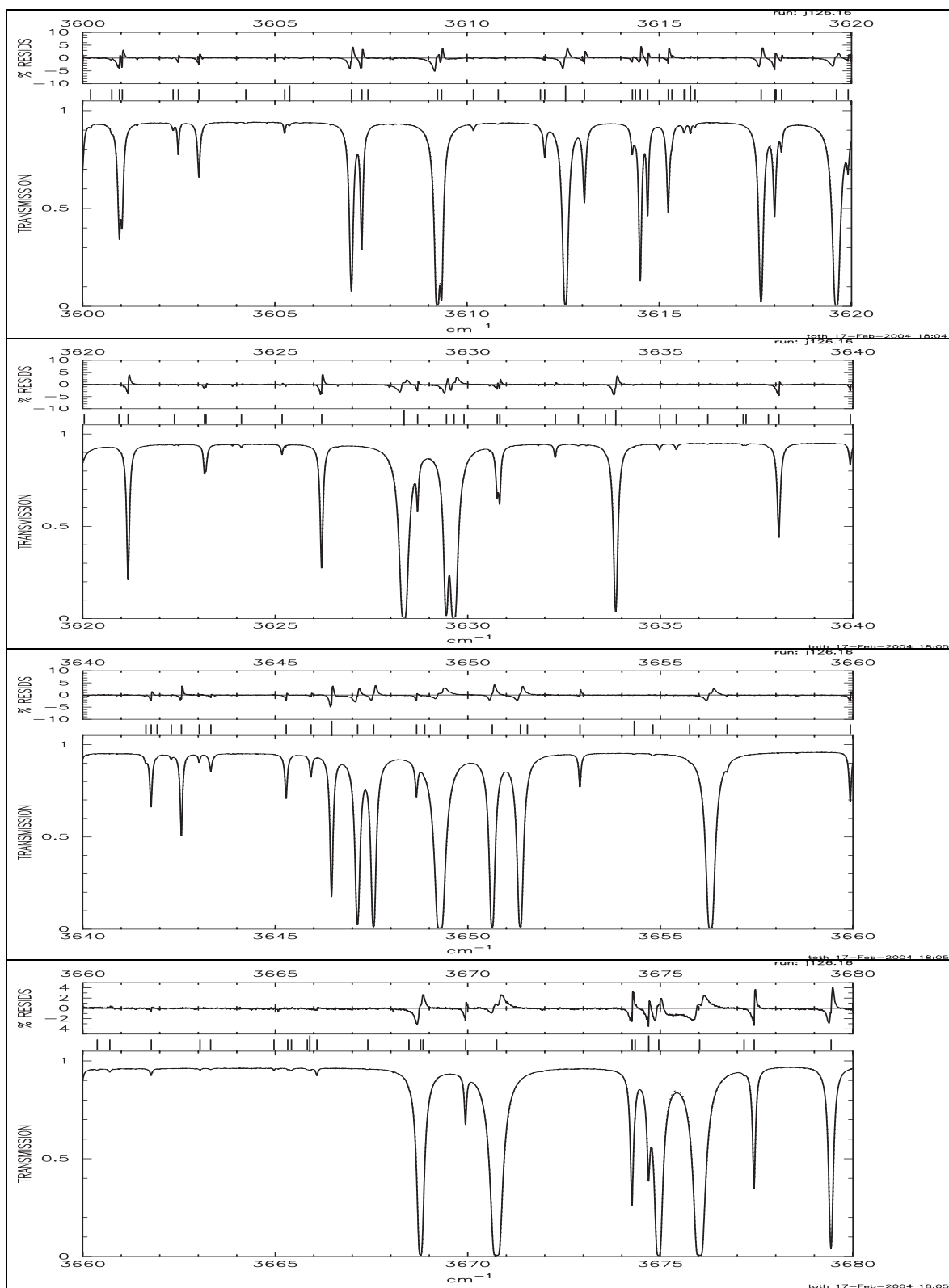


Figure A23. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J126.16



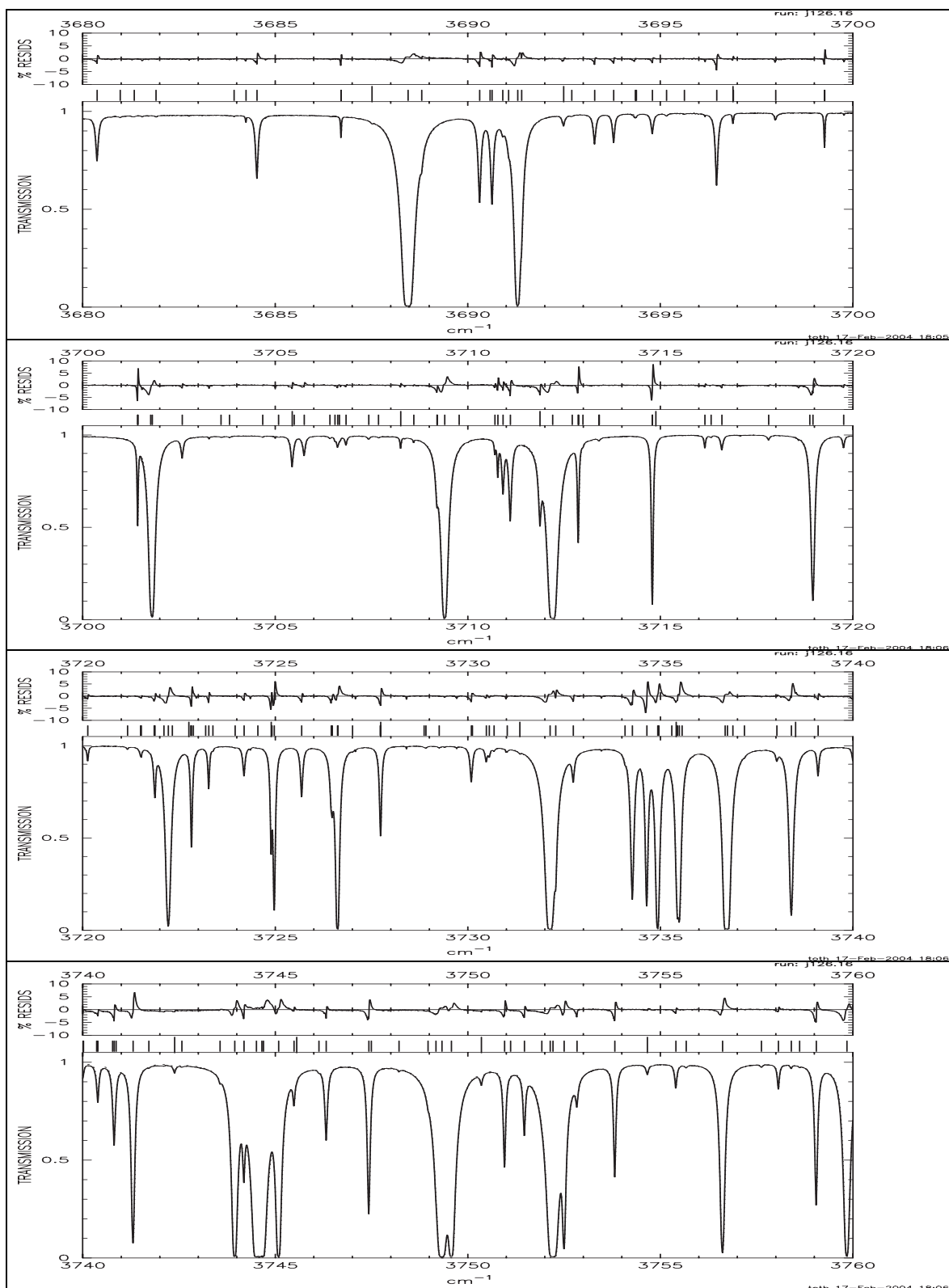


Figure A24. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J126.16

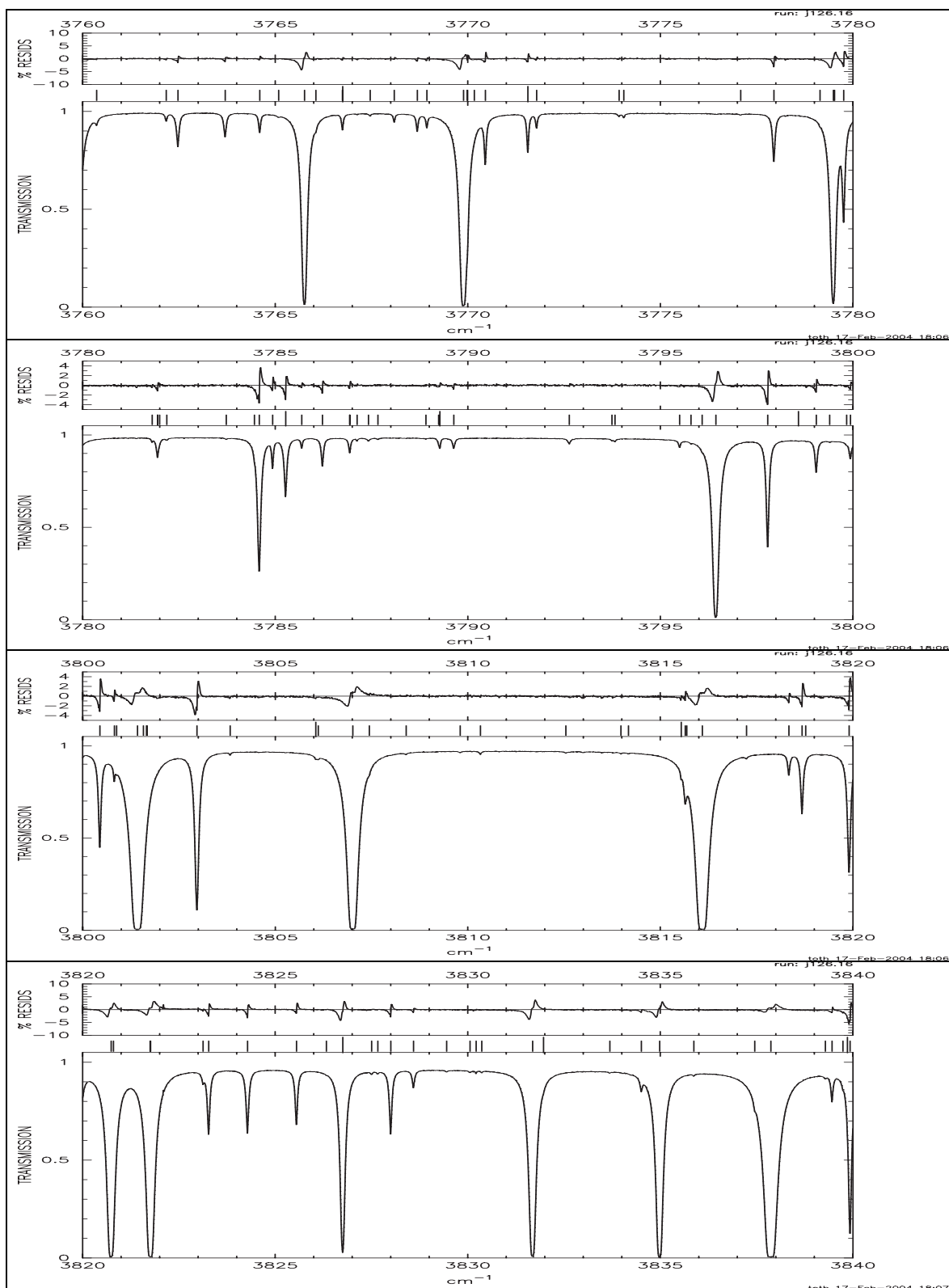


Figure A25. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J126.16

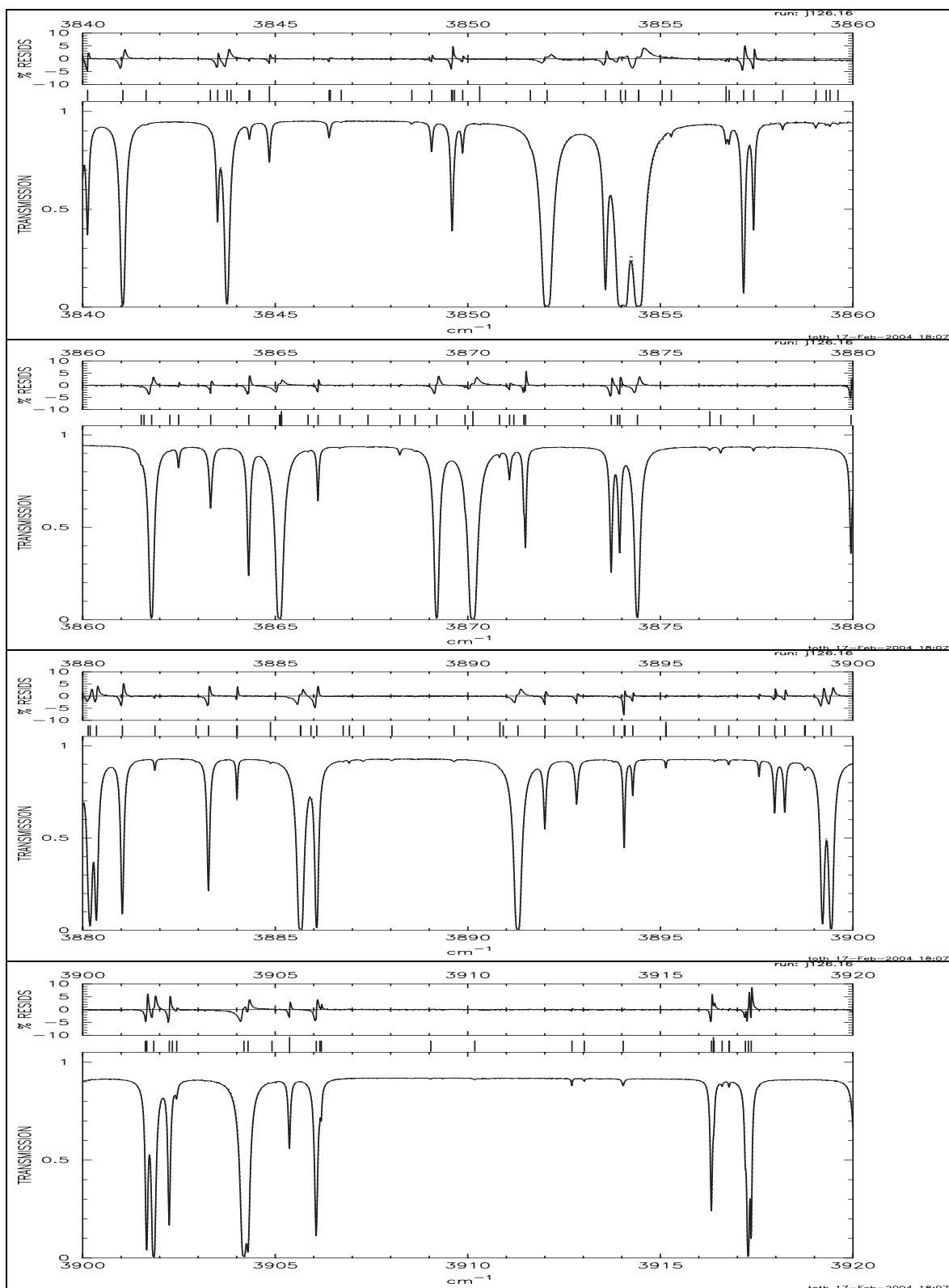


Figure A26. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J126.16

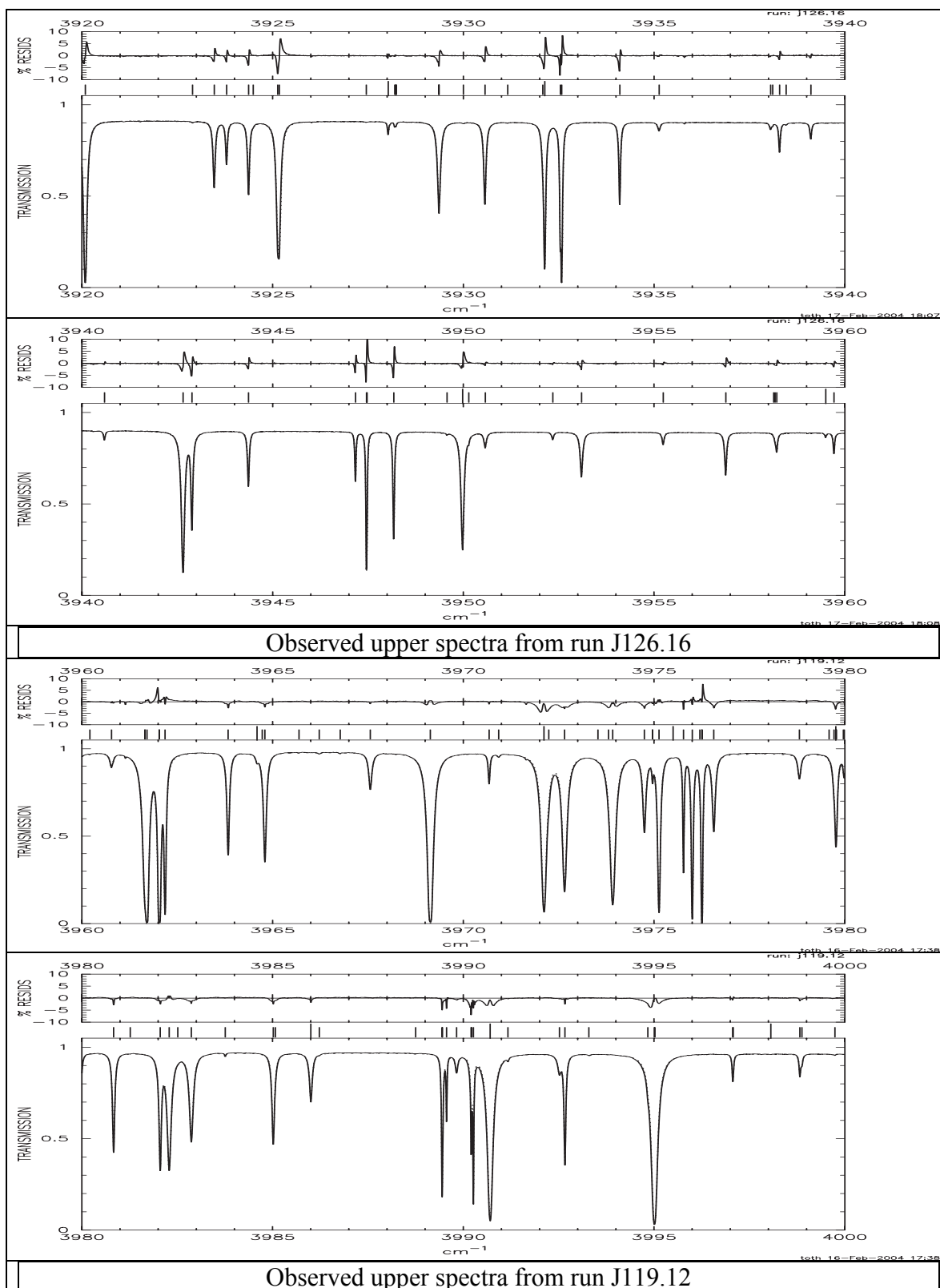


Figure A27. Observed and computed spectra of  $\text{H}_2\text{O}$ .

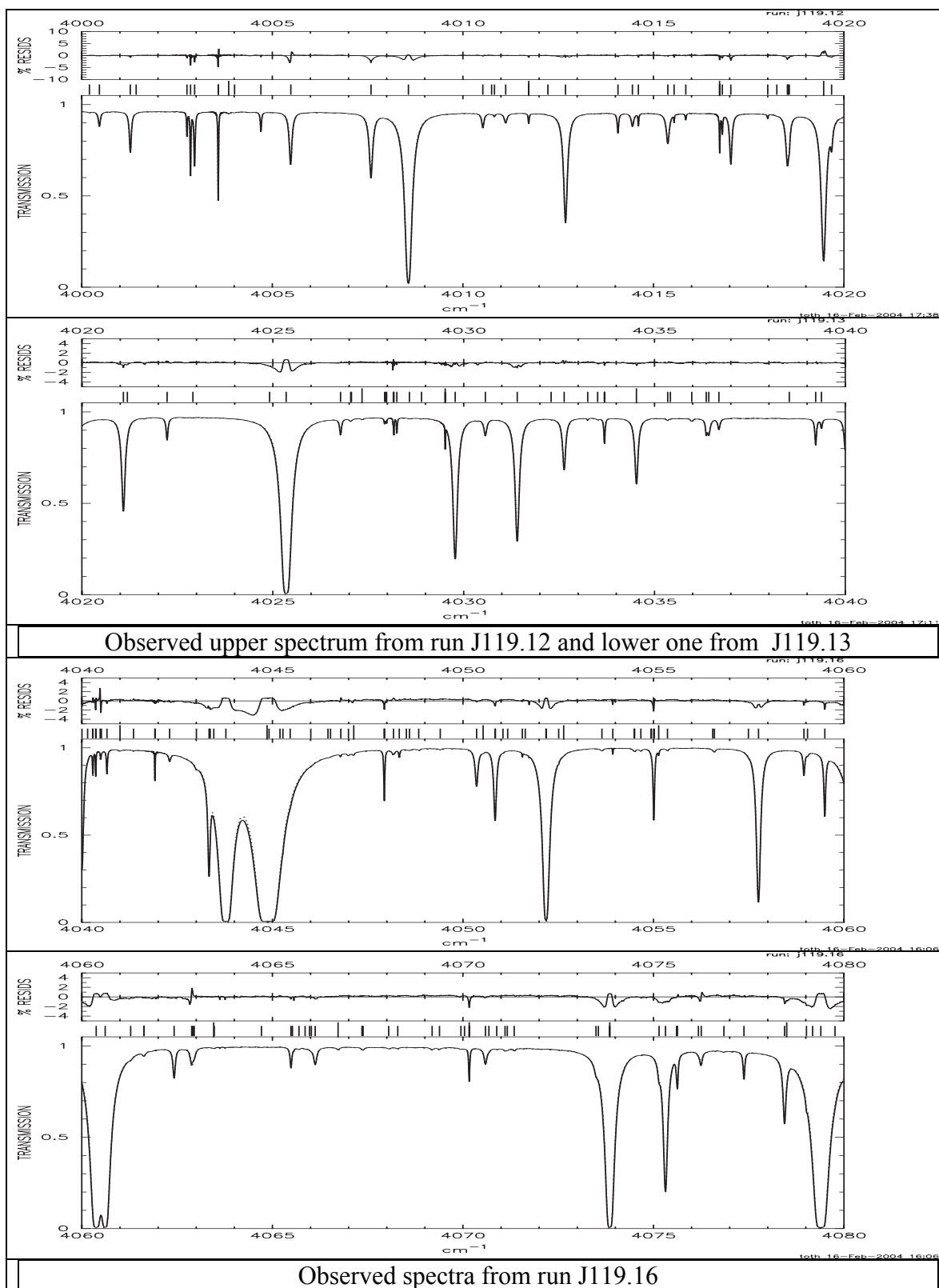


Figure A28. Observed and computed spectra of  $\text{H}_2\text{O}$ .

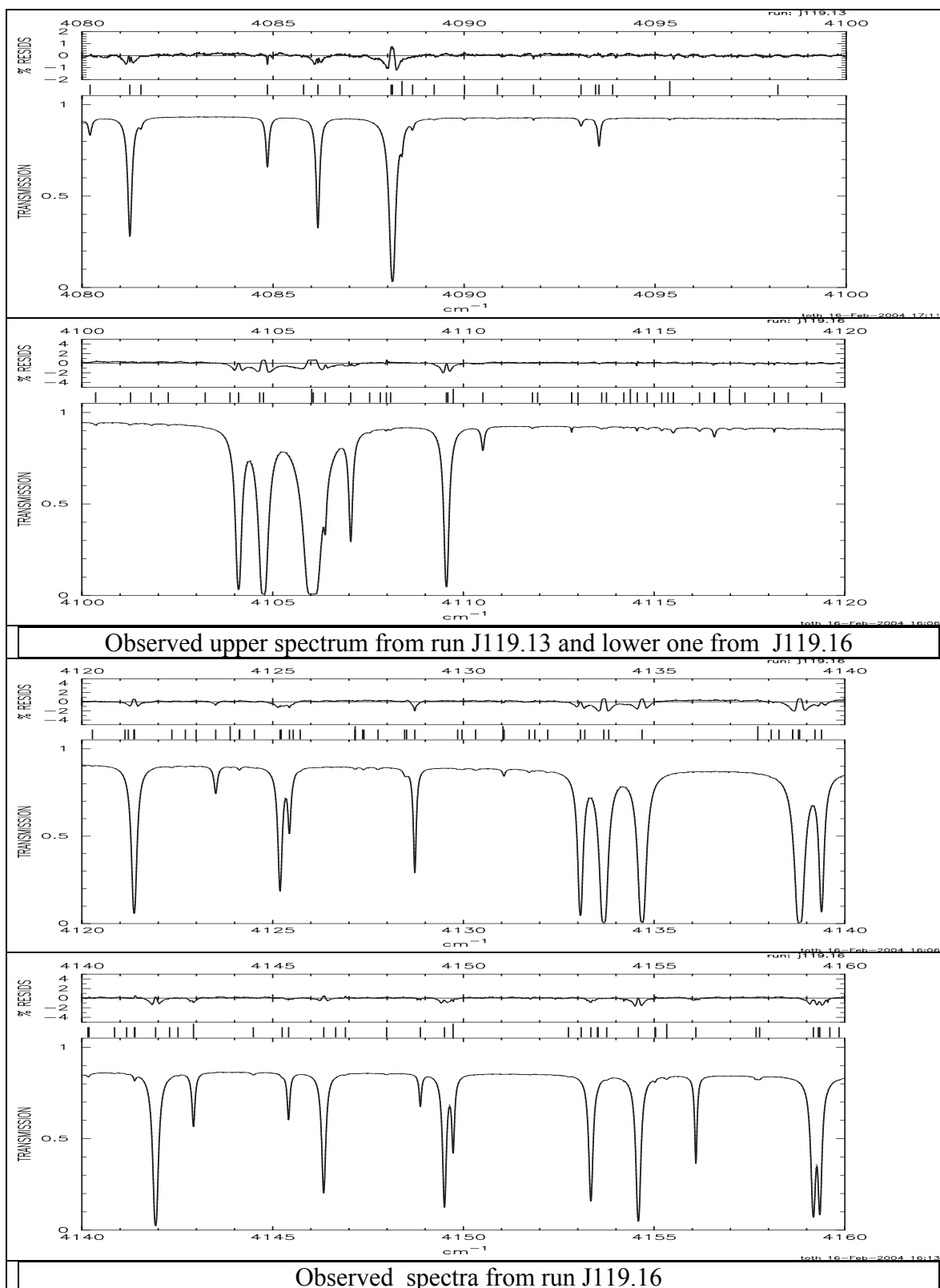


Figure A29. Observed and computed spectra of  $\text{H}_2\text{O}$ .

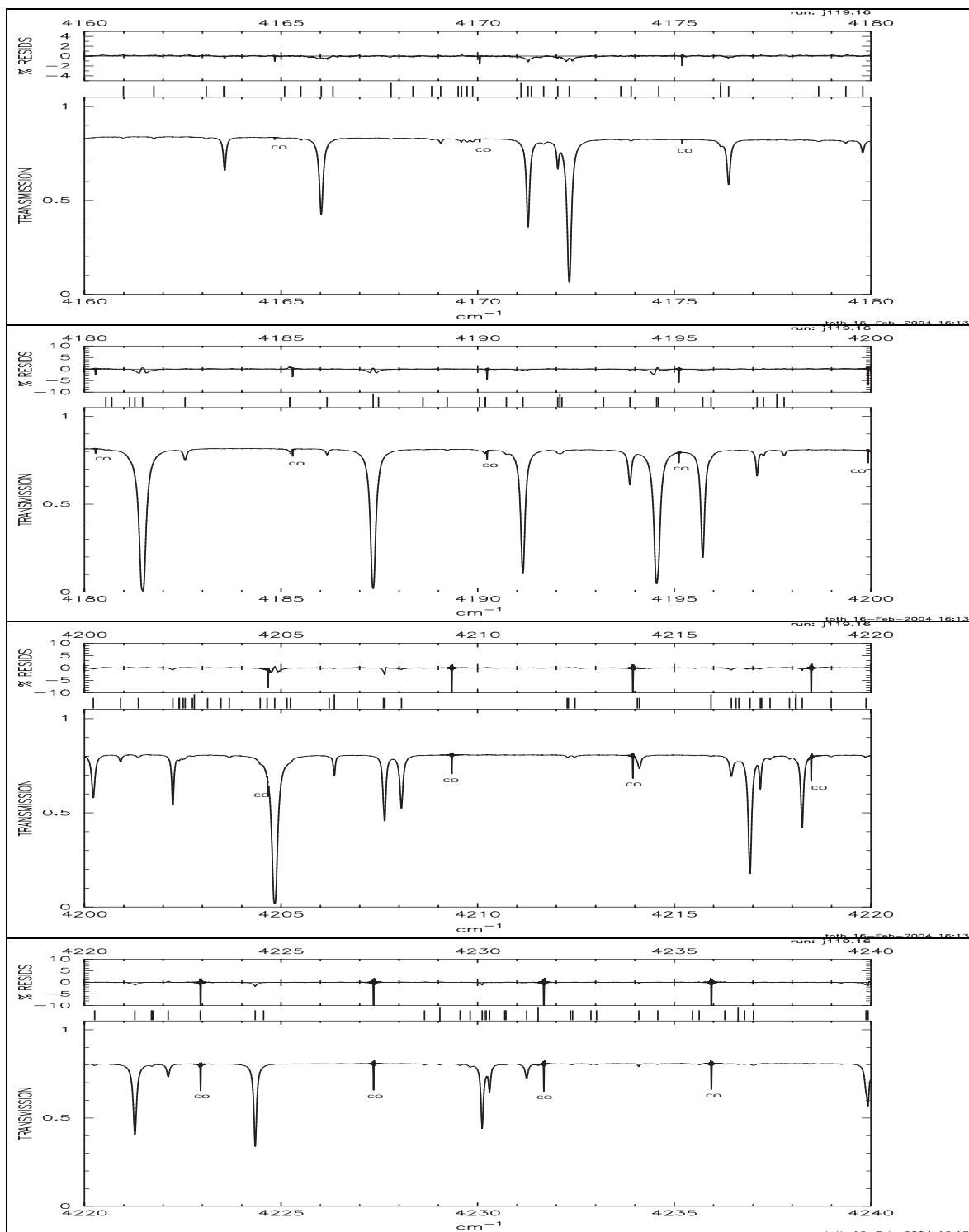


Figure A30. Observed and computed spectra of H<sub>2</sub>O. Observed spectra from run J119.16. Low pressure CO absorptions also observed, but not computed, in spectra. CO lines used for frequency calibration.

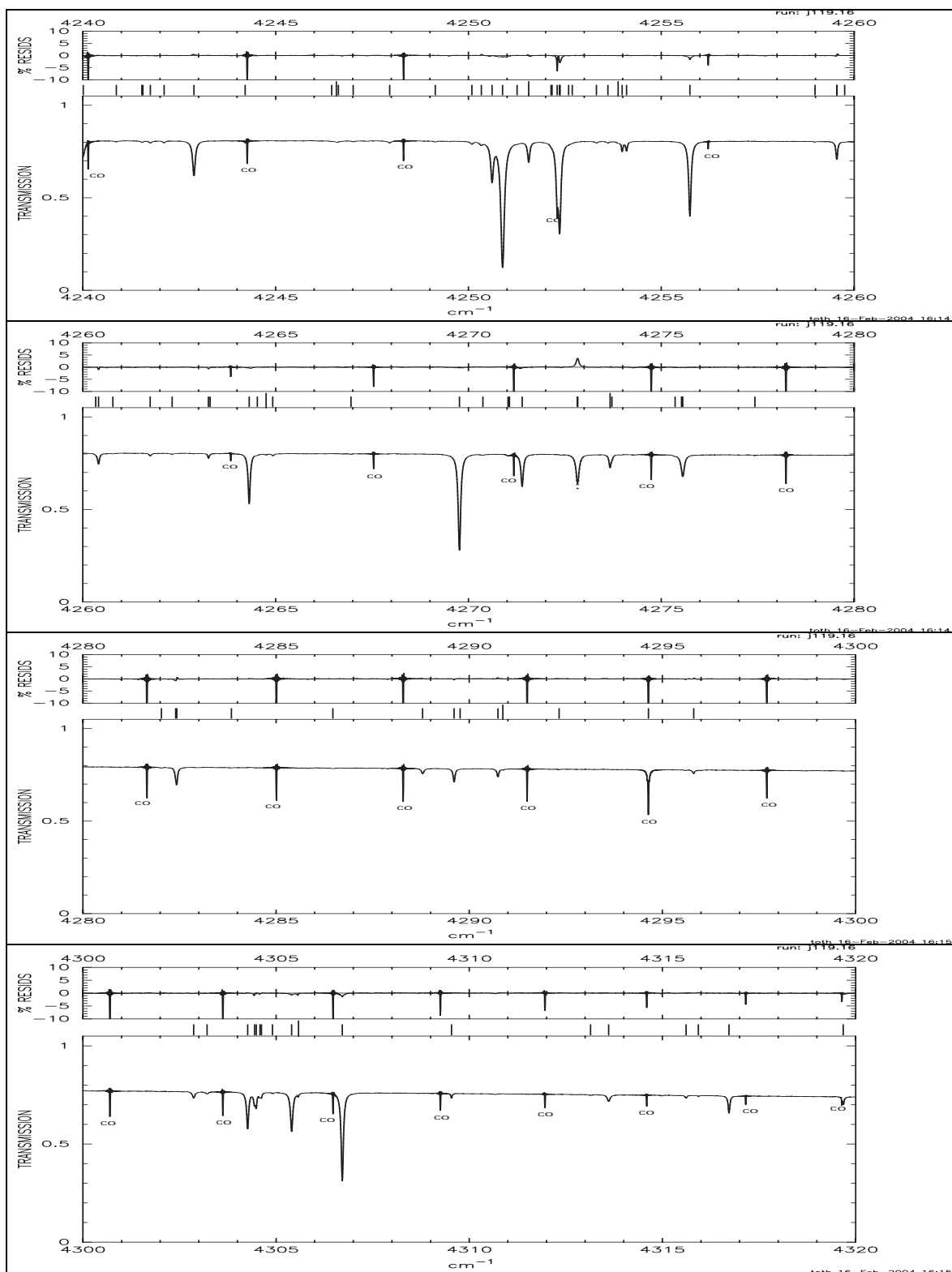


Figure A31. Observed and computed spectra of  $\text{H}_2\text{O}$ . Observed spectra from run J119.16. Low pressure CO absorptions also observed, but not computed, in spectra. CO lines used for frequency calibration.