

## **Additional appendix to Lamperti et al. (2022):**

### *Physics of ULIRGs with MUSE and ALMA: The PUMA project* *IV. No tight relation between cold molecular outflow rates and AGN luminosities*

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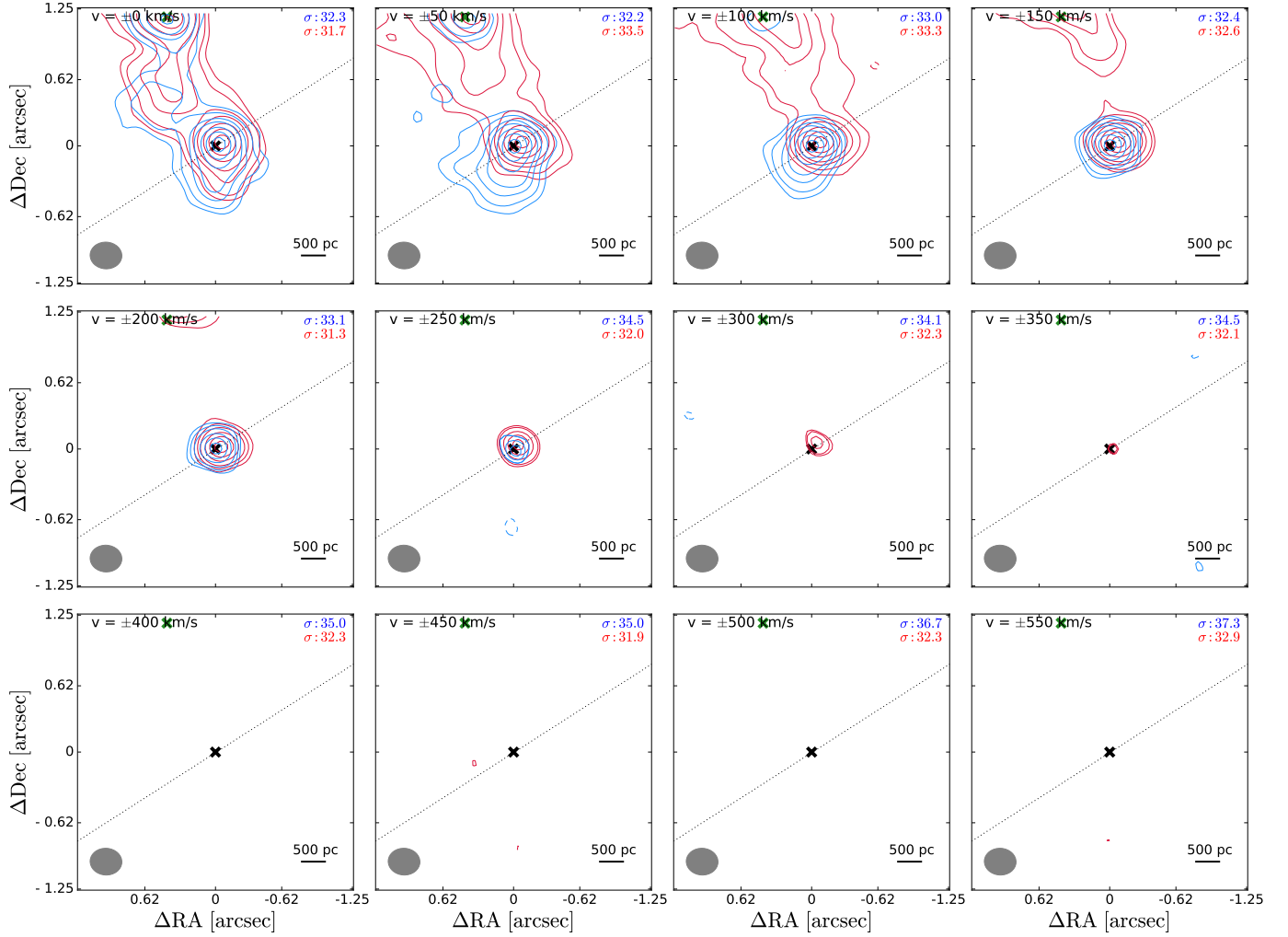
#### **1. CO(2-1) channel maps of the PUMA sample**

CO(2-1) channel maps of the 25 ULIRGs systems (38 individual nuclei) in the *Physics of ULIRGs with MUSE and ALMA* (PUMA) sample (Perna et al. 2021; Pereira-Santaella et al. 2021). The CO(2-1) ALMA data are presented in Lamperti et al. (2022). These figures are an extension of the appendix to Lamperti et al. (2022).

#### **References**

- Lamperti, I., Pereira-Santaella, M., Perna, M., et al. 2022, A&A, in press, arXiv:2209.03380  
Pereira-Santaella, M., Colina, L., García-Burillo, S., et al. 2021, A&A, 651, A42  
Perna, M., Arribas, S., Pereira Santaella, M., et al. 2021, A&A, 646, A101

Fig. 1: CO(2-1) channel maps of 00091-0738 S showing the emission in channels of  $50 \text{ km s}^{-1}$  on the blue and red-shifted side with respect to the CO redshift ( $z_{\text{CO}}$ ). The lowest contour corresponds to  $3 \times \sigma$ , where  $\sigma$  is the rms measured in each  $50 \text{ km s}^{-1}$  channel in mJy, and the other contours correspond to 0.1, 0.2, 0.3, 0.5, 0.7,  $0.9 \times$  maximum flux. Contours are shown only if they are above the  $3 \times \sigma$  level. Dashed contours show negative  $-3, -4, -5 \dots \times \sigma$  levels. The  $\sigma$  values (in mJy) for the blue and red channels are indicated in the top-right corner. The dotted line shows the kinematic major axis, the dashed line shows the direction of the outflow (if present). The black cross shows the peak position of the ALMA continuum. The green cross shows the continuum position of the second nucleus in interacting systems.



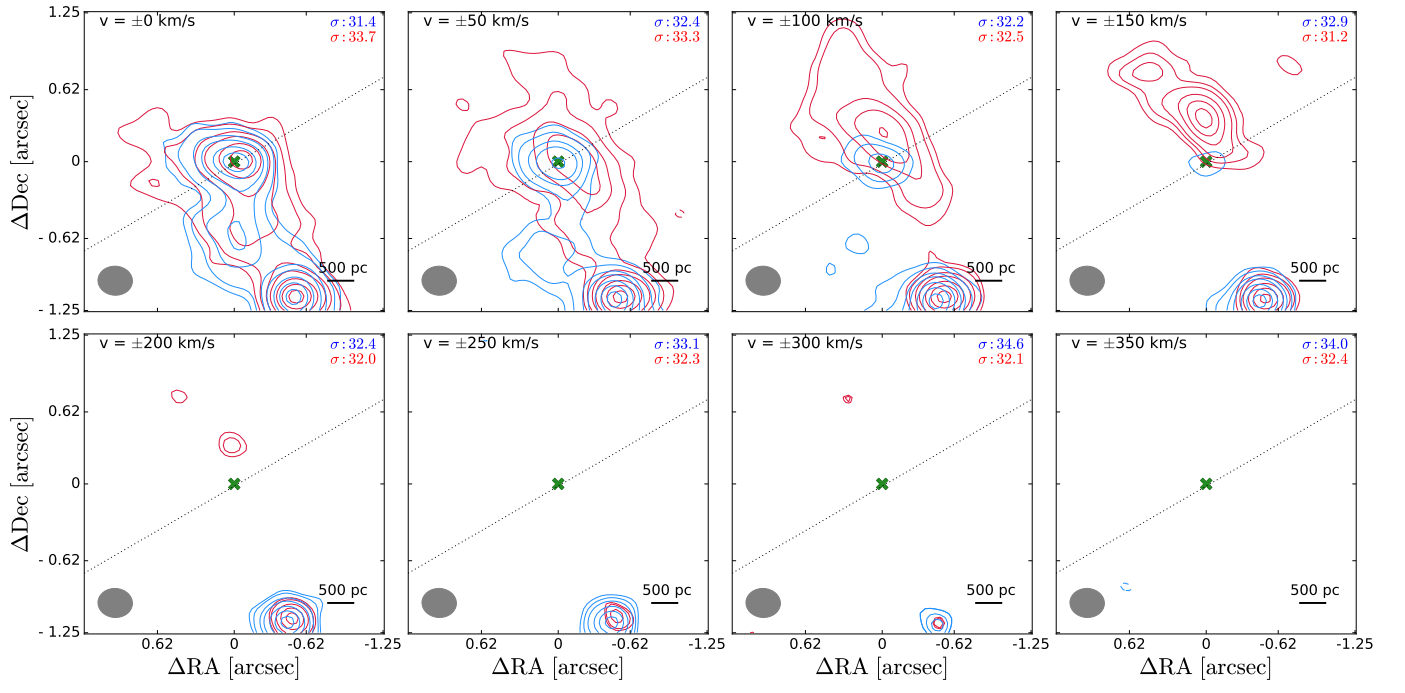


Fig. 2: 00091-0738 N.

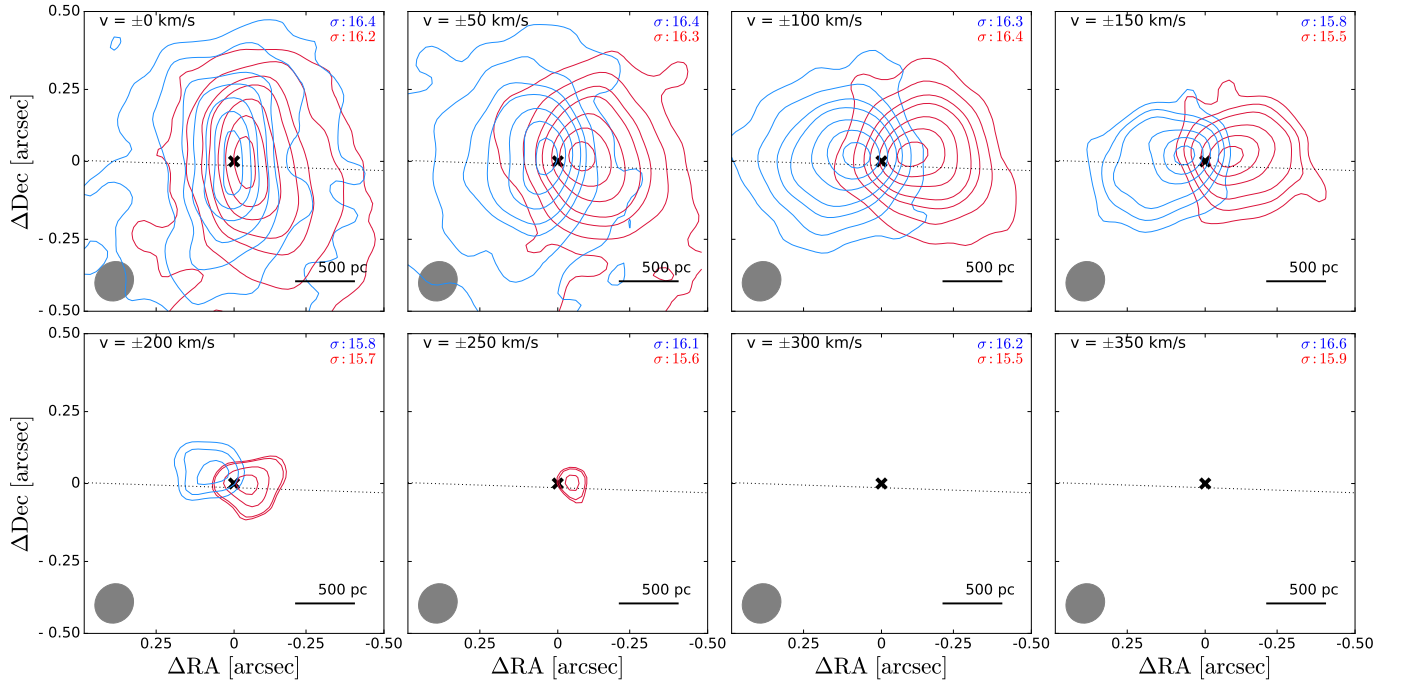


Fig. 3: 00188-0856.

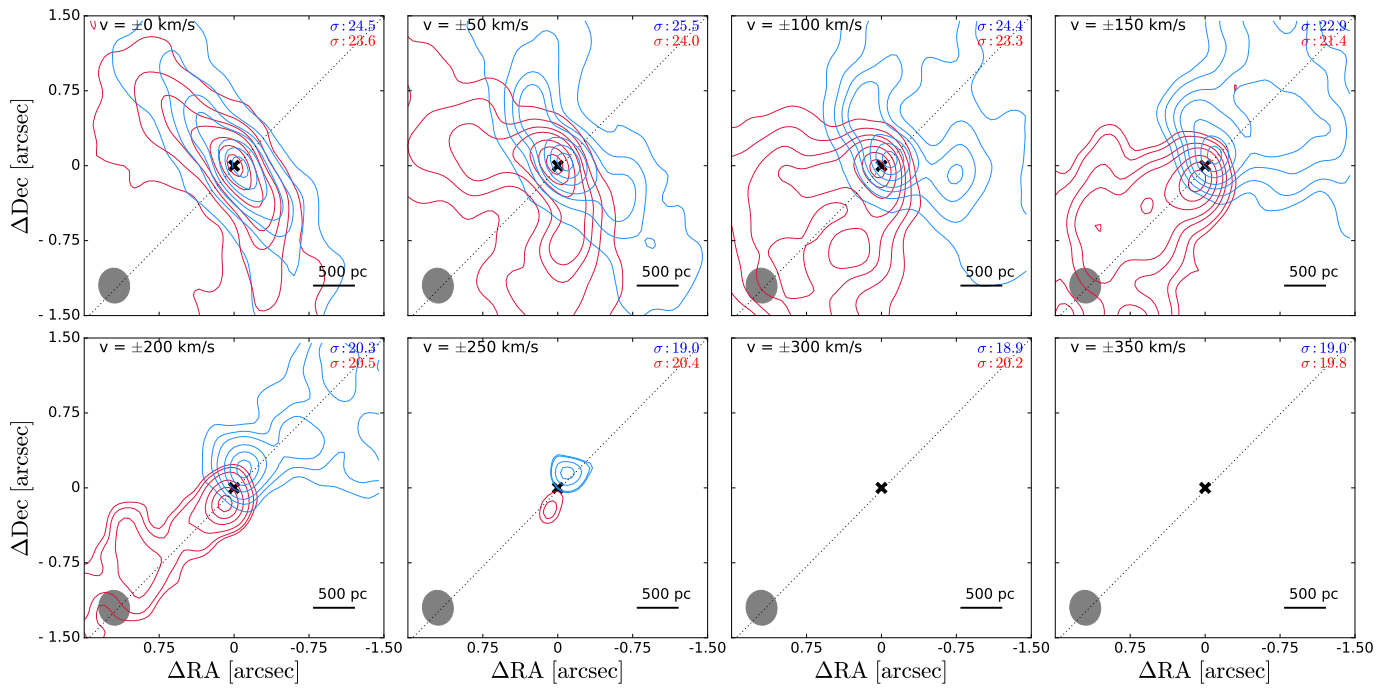


Fig. 4: 00509+1225.

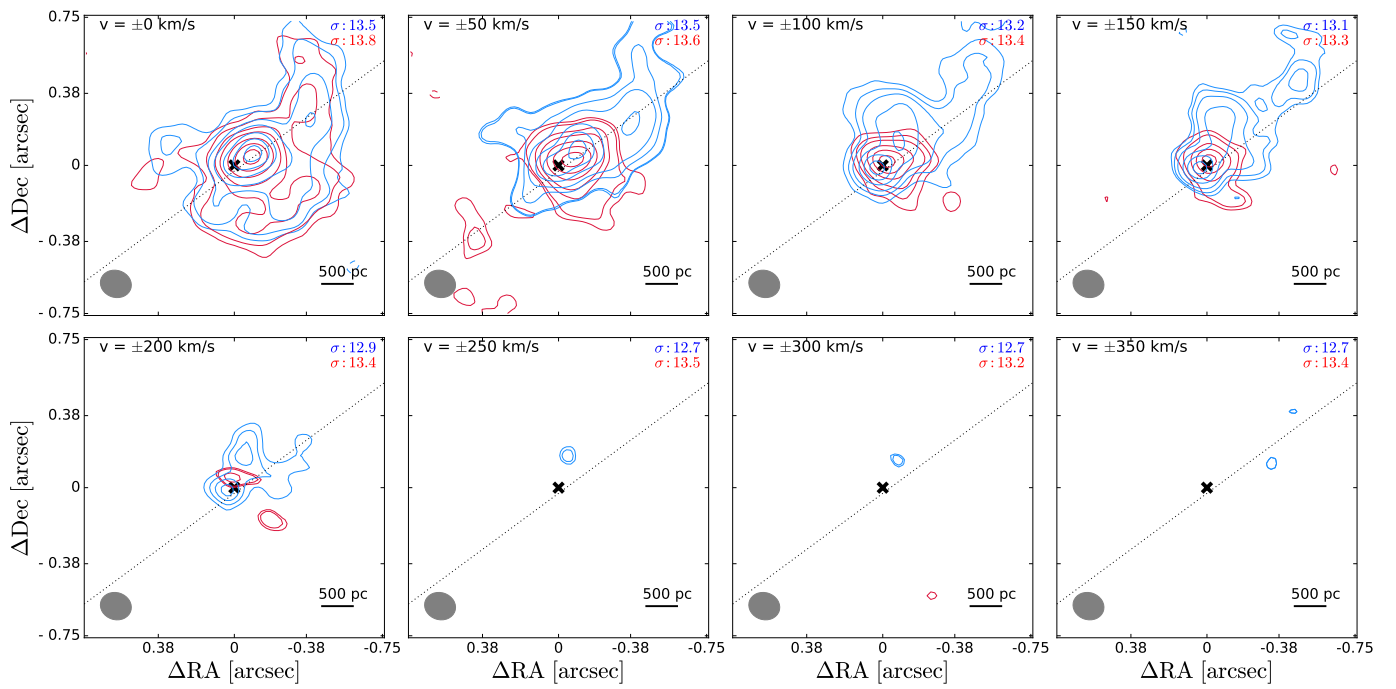


Fig. 5: 01572+0009.

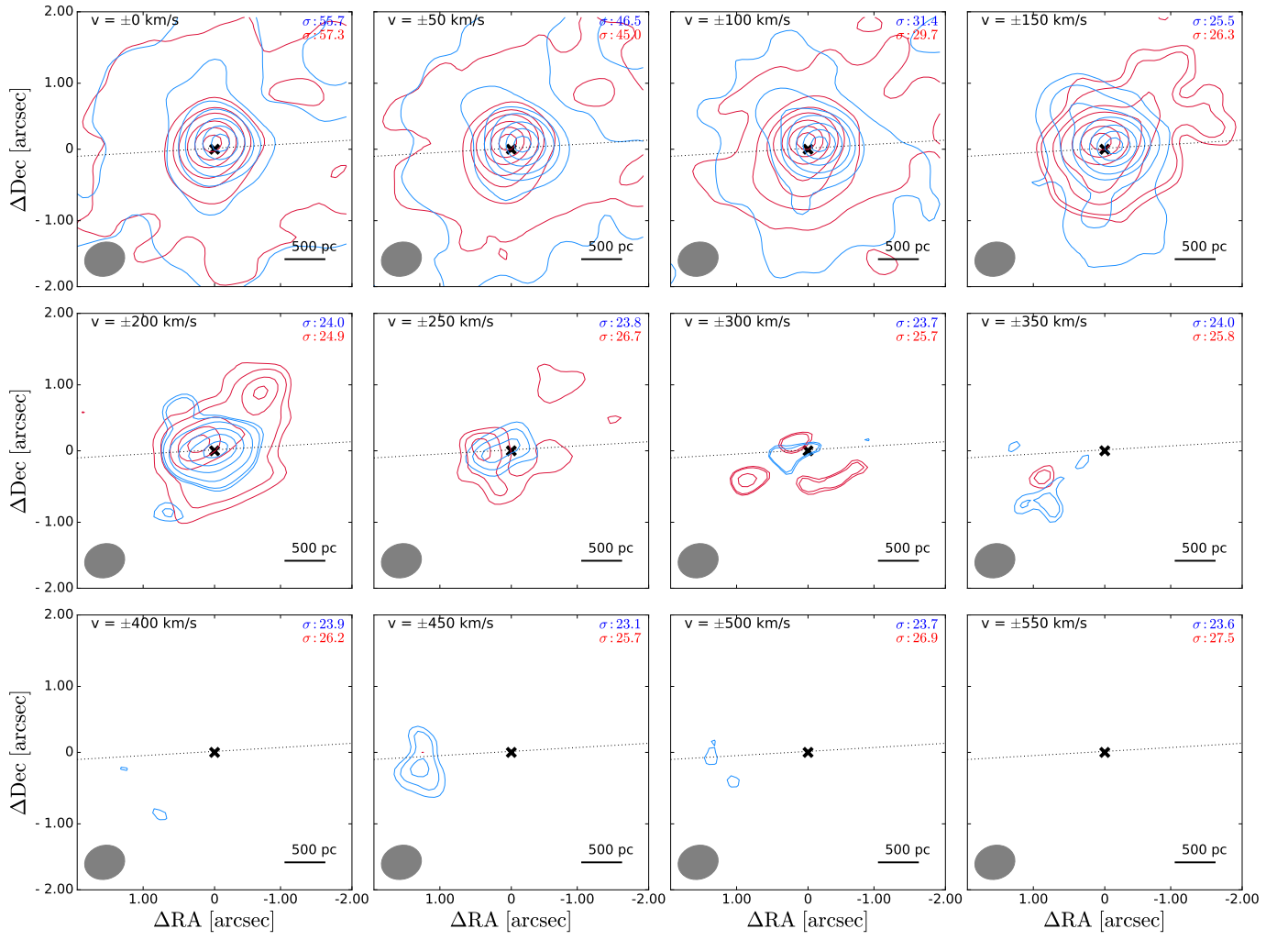


Fig. 6: 05189-2524.

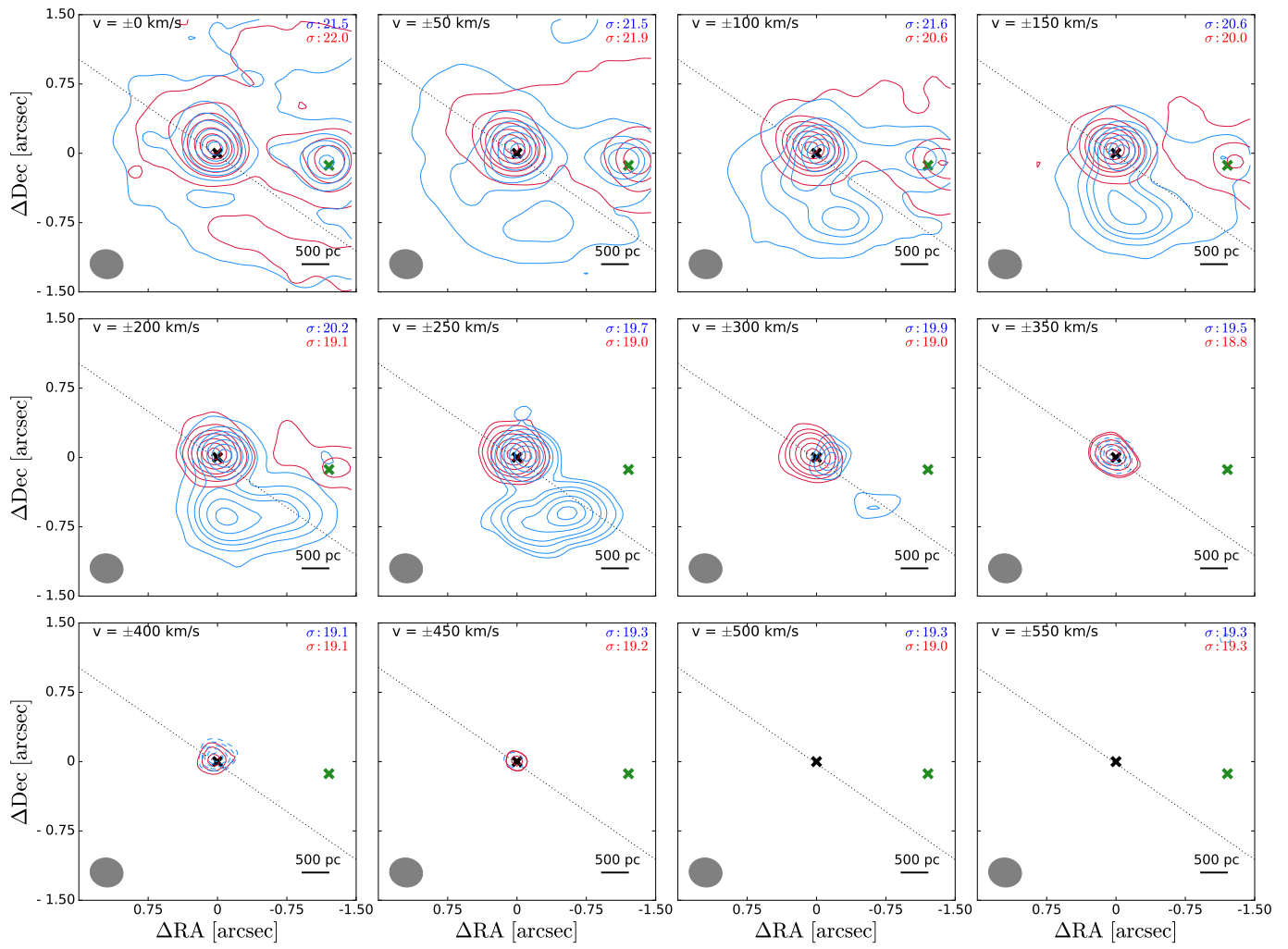


Fig. 7: 07251-0248 E.

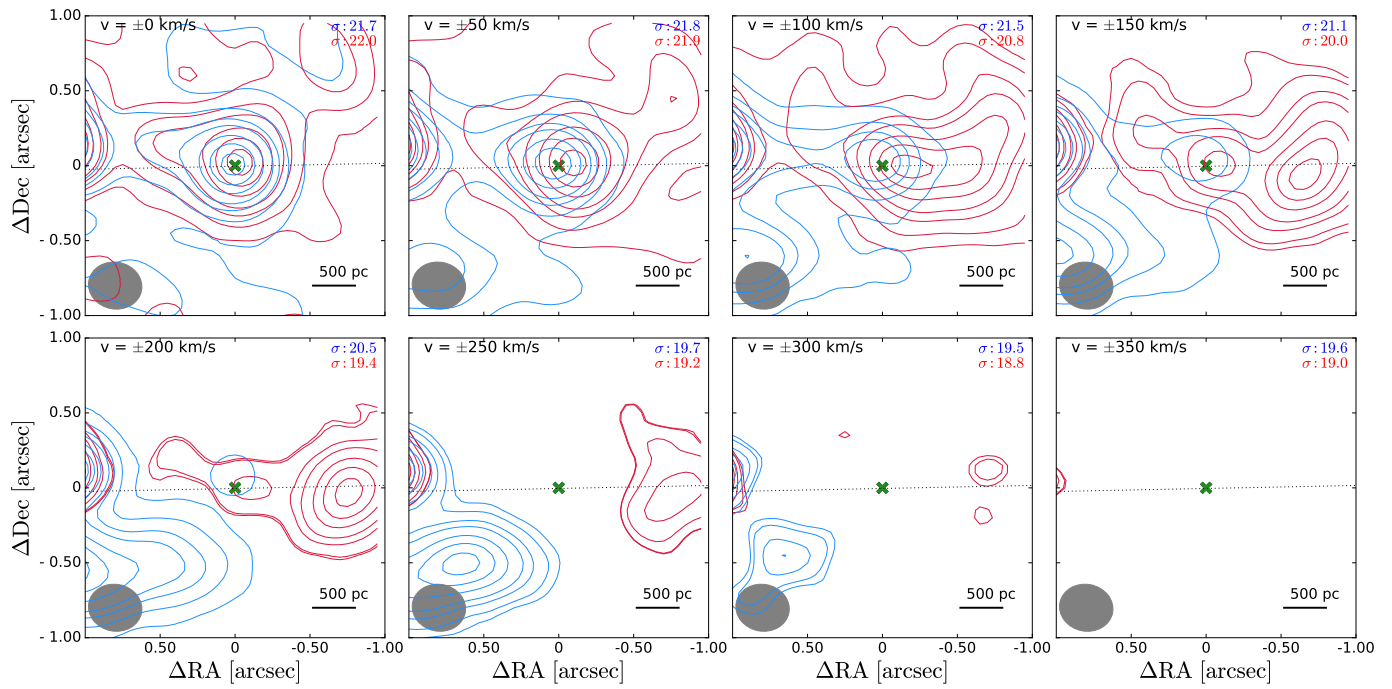


Fig. 8: 07251-0248 W.

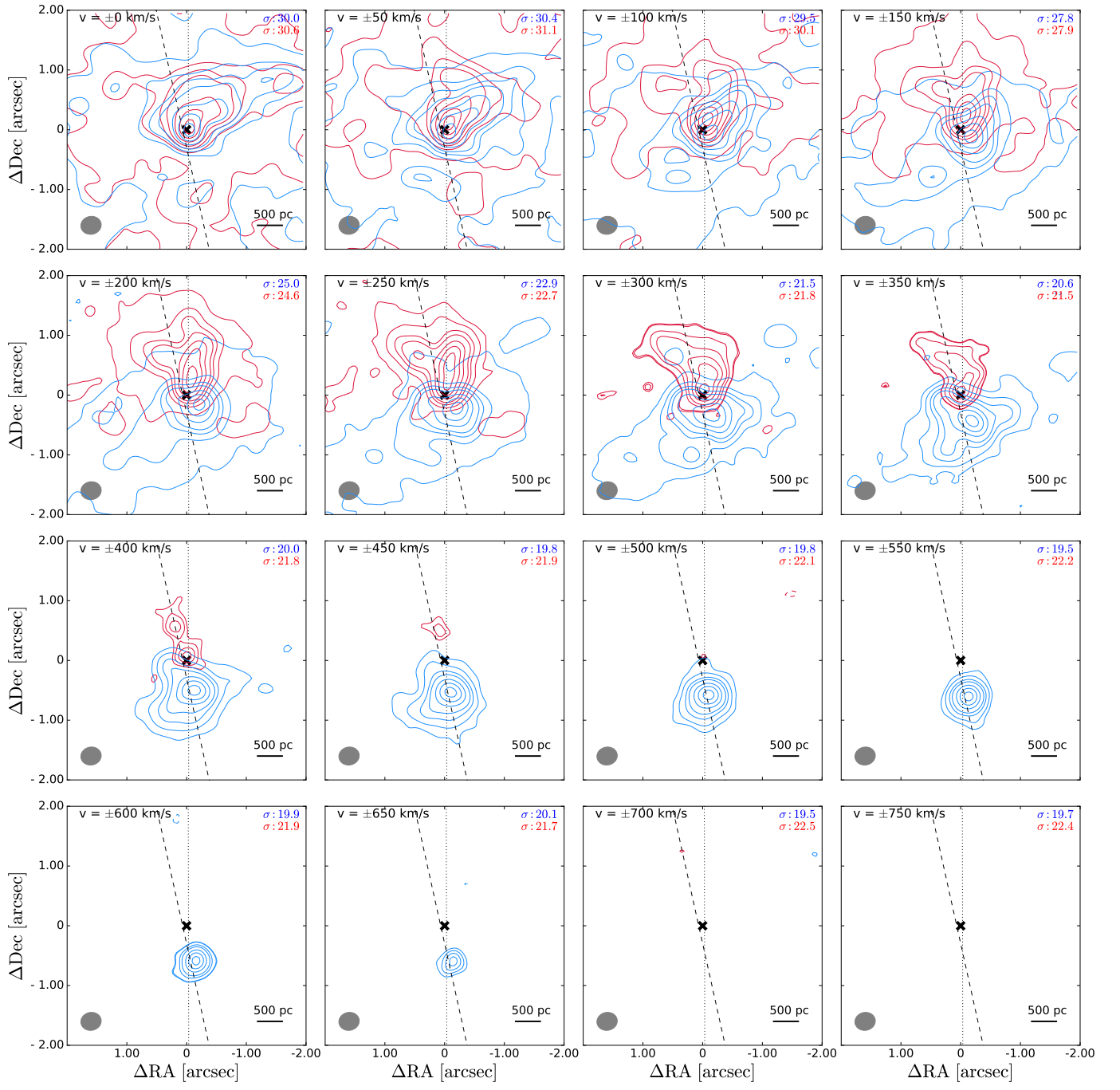


Fig. 9: 09022-3615.

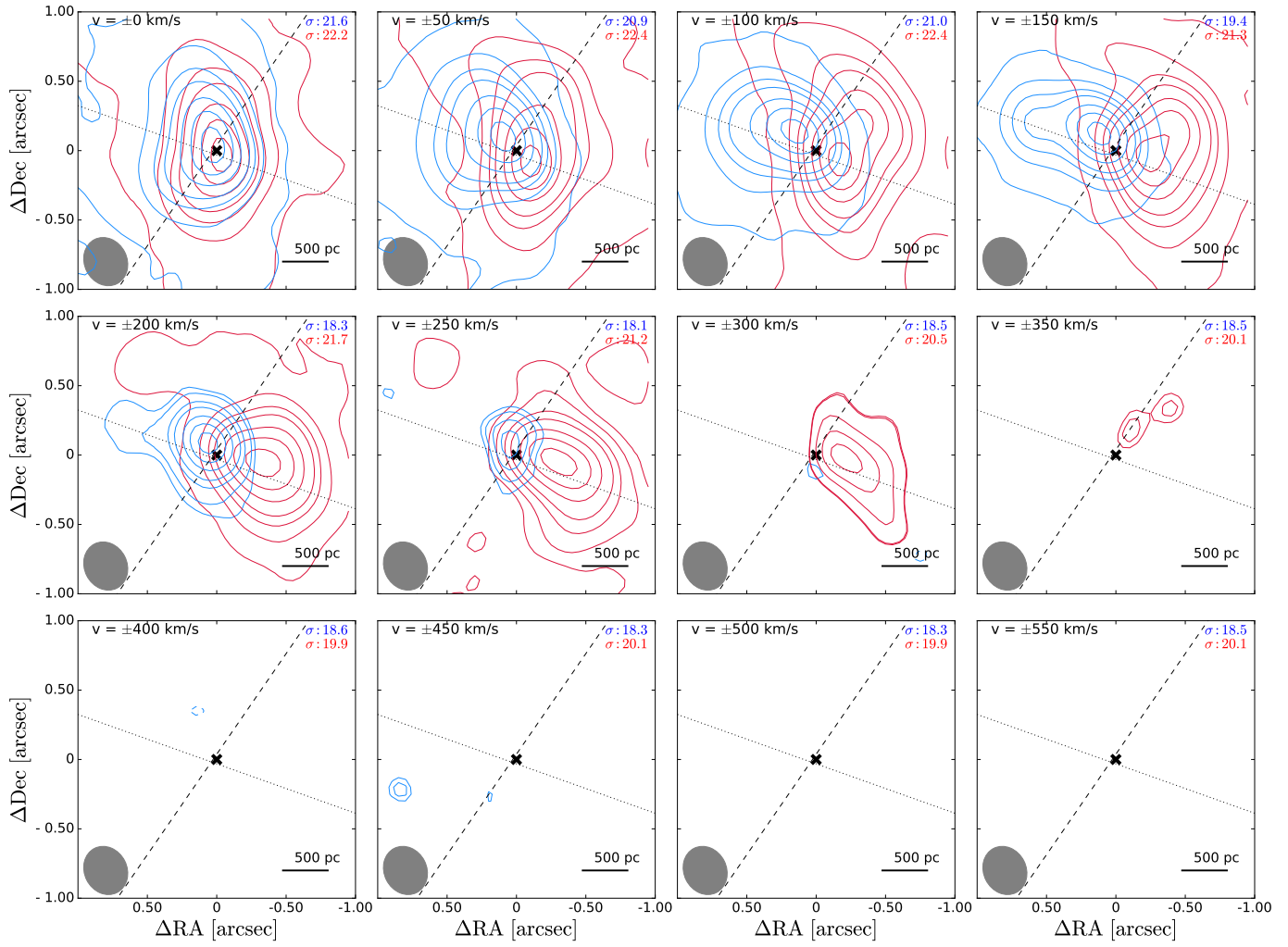


Fig. 10: 10190+1322 E.

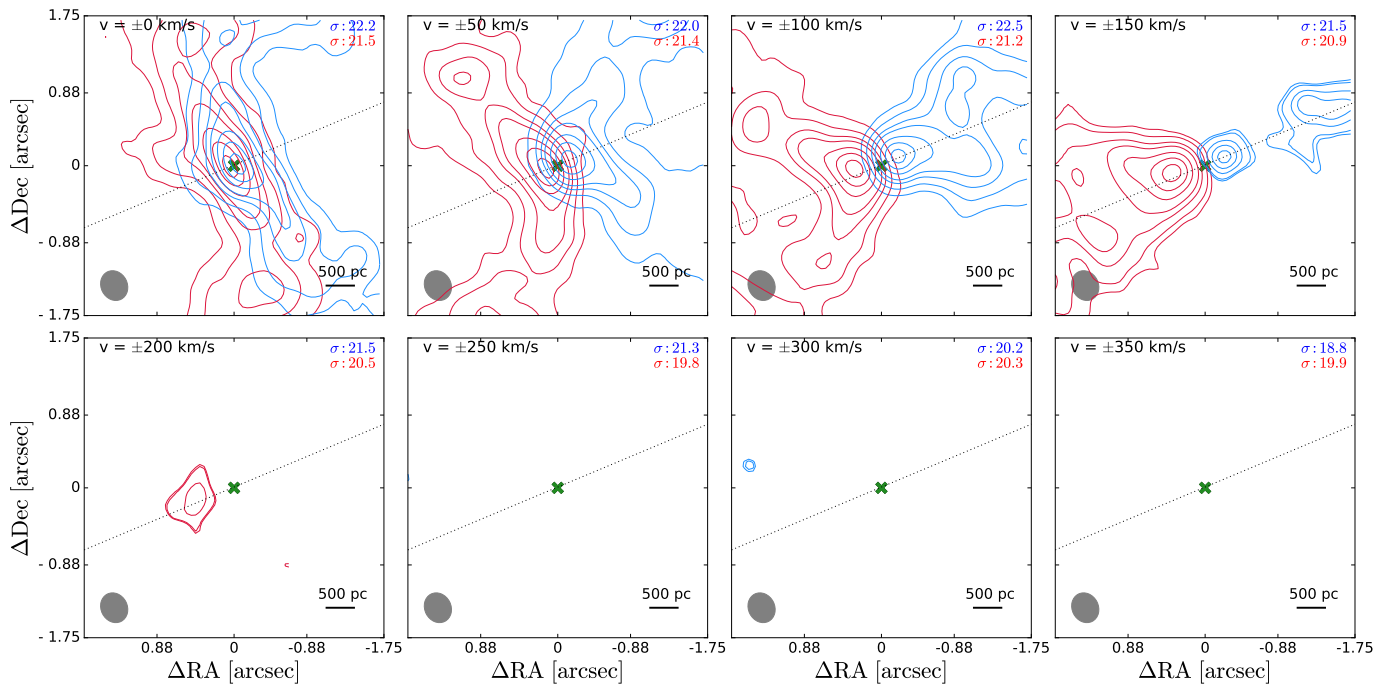


Fig. 11: 10190+1322 W.



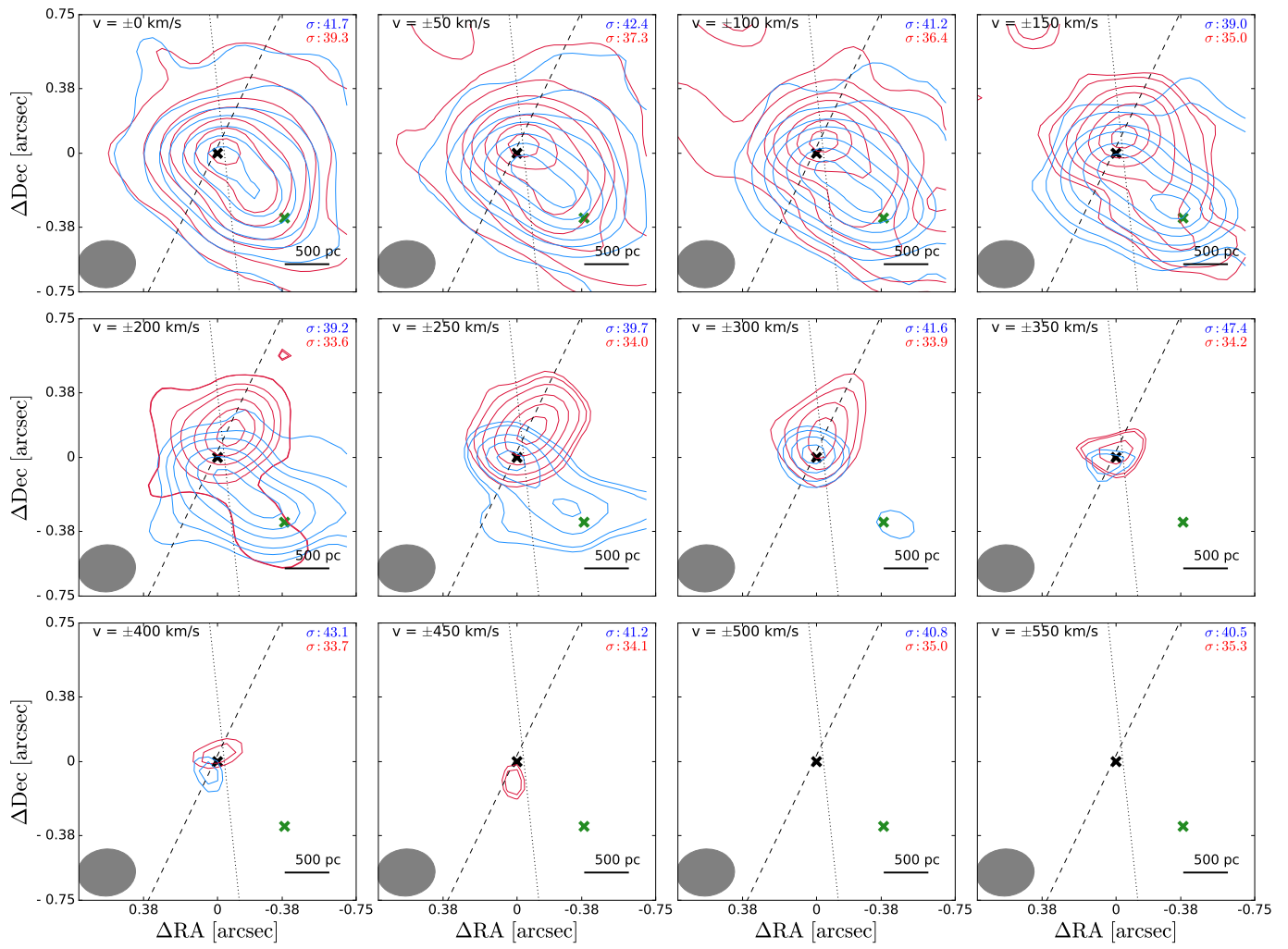


Fig. 12: 11095-0238 NE.

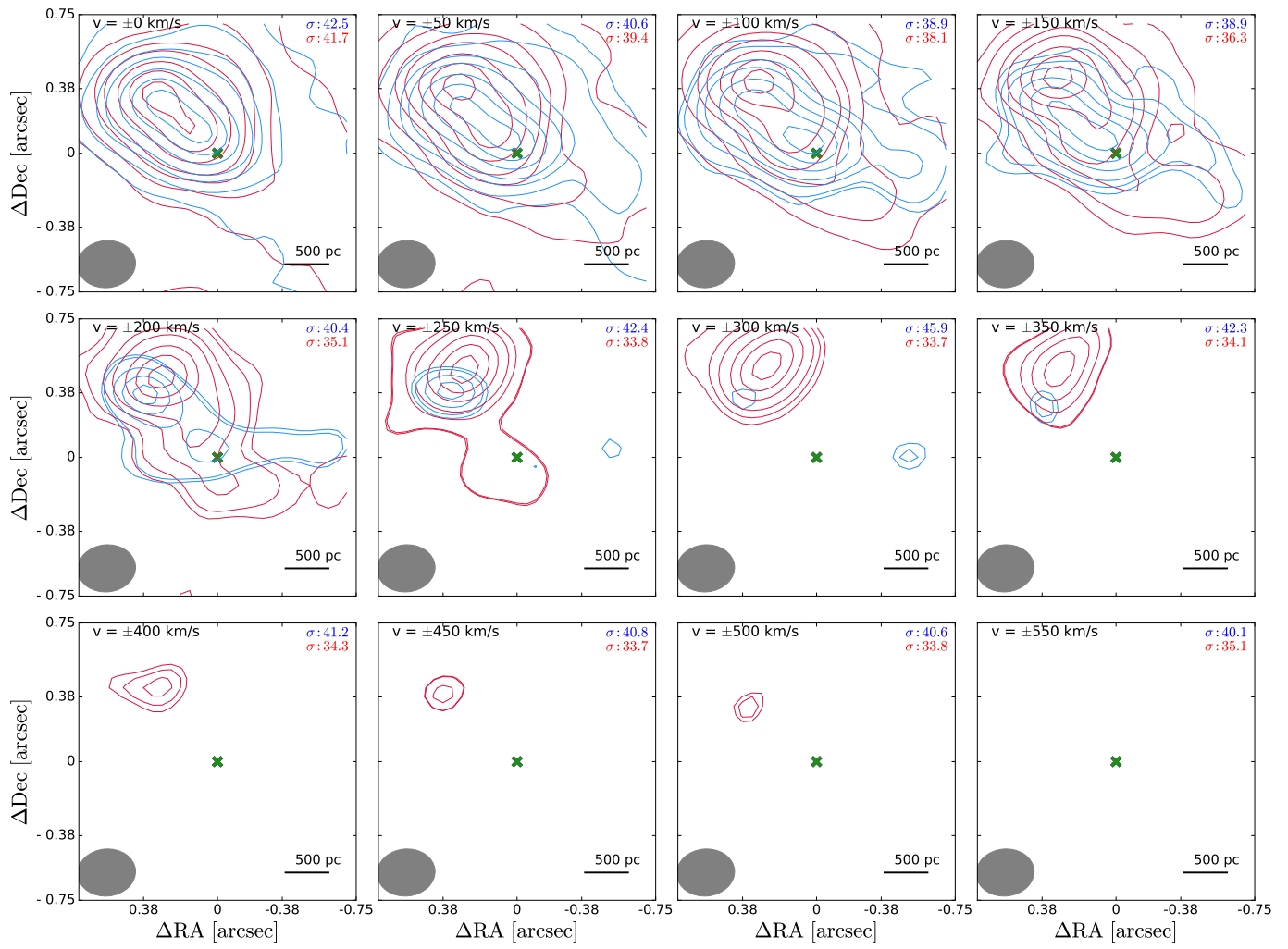


Fig. 13: 11095-0238 SW.

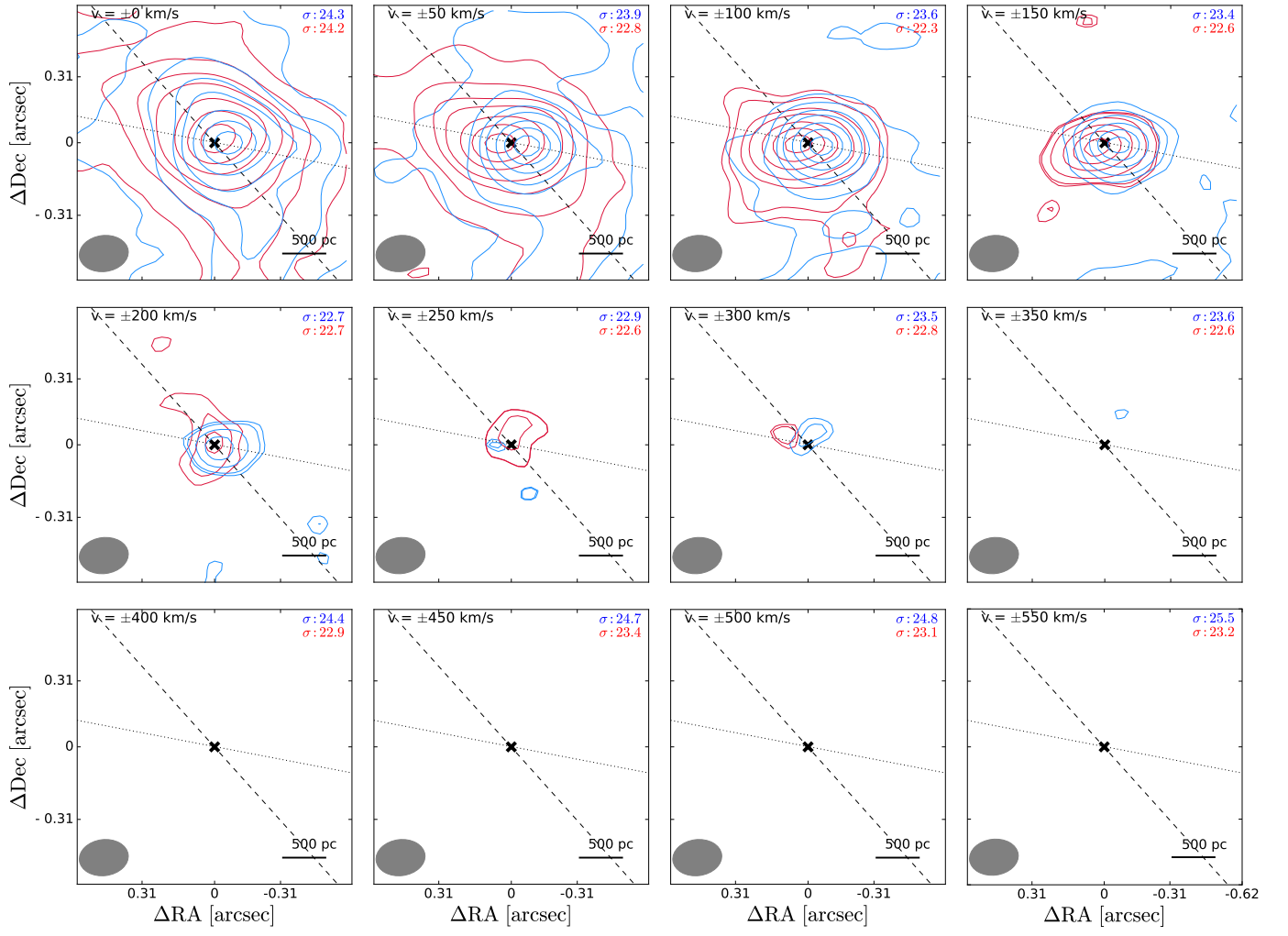


Fig. 14: 12071-0444 N.

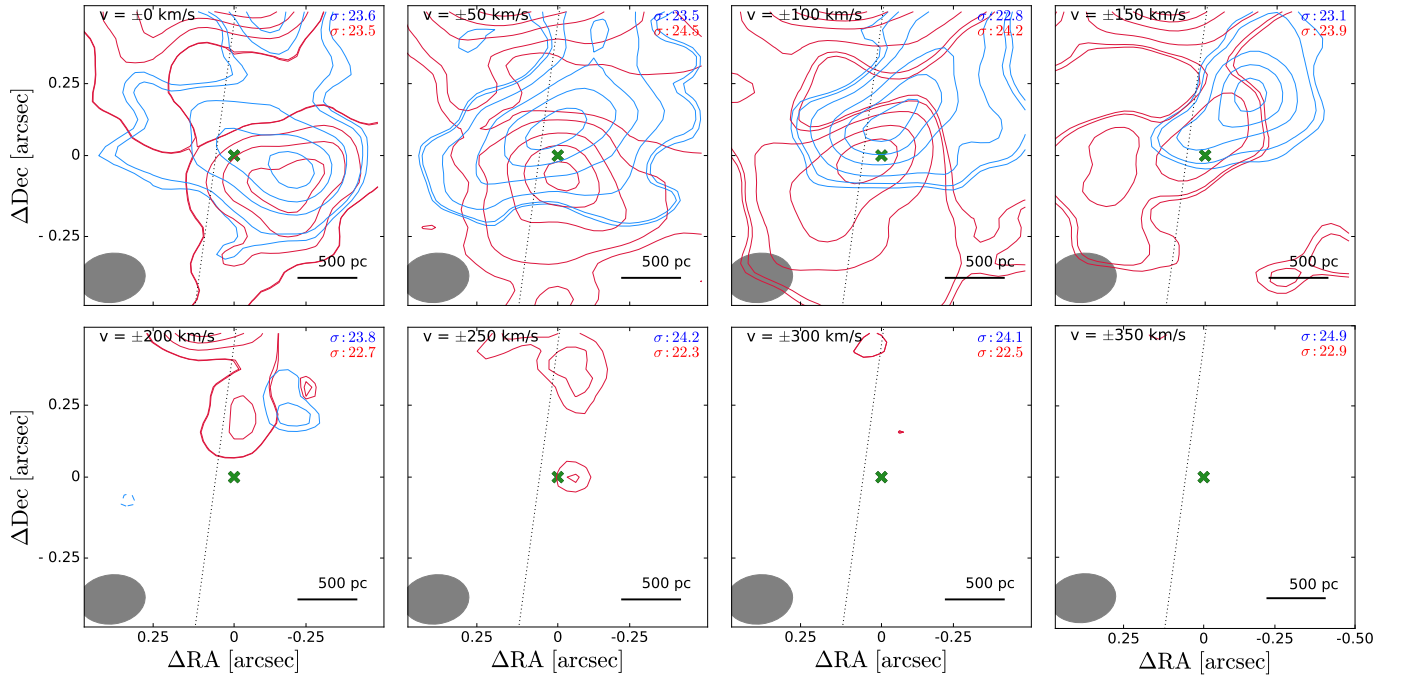


Fig. 15: 12071-0444 S.

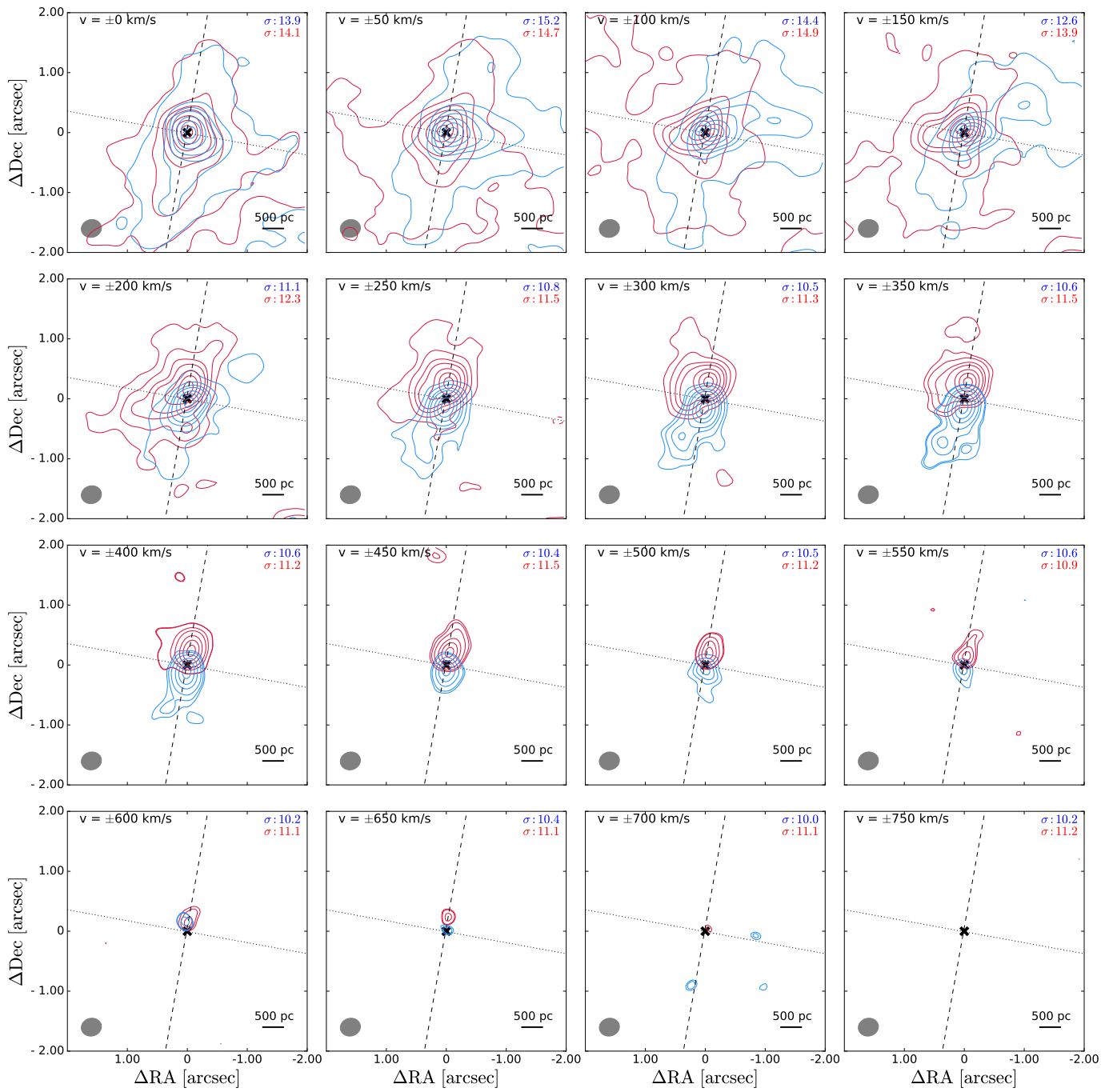


Fig. 16: 12112+0305 NE.

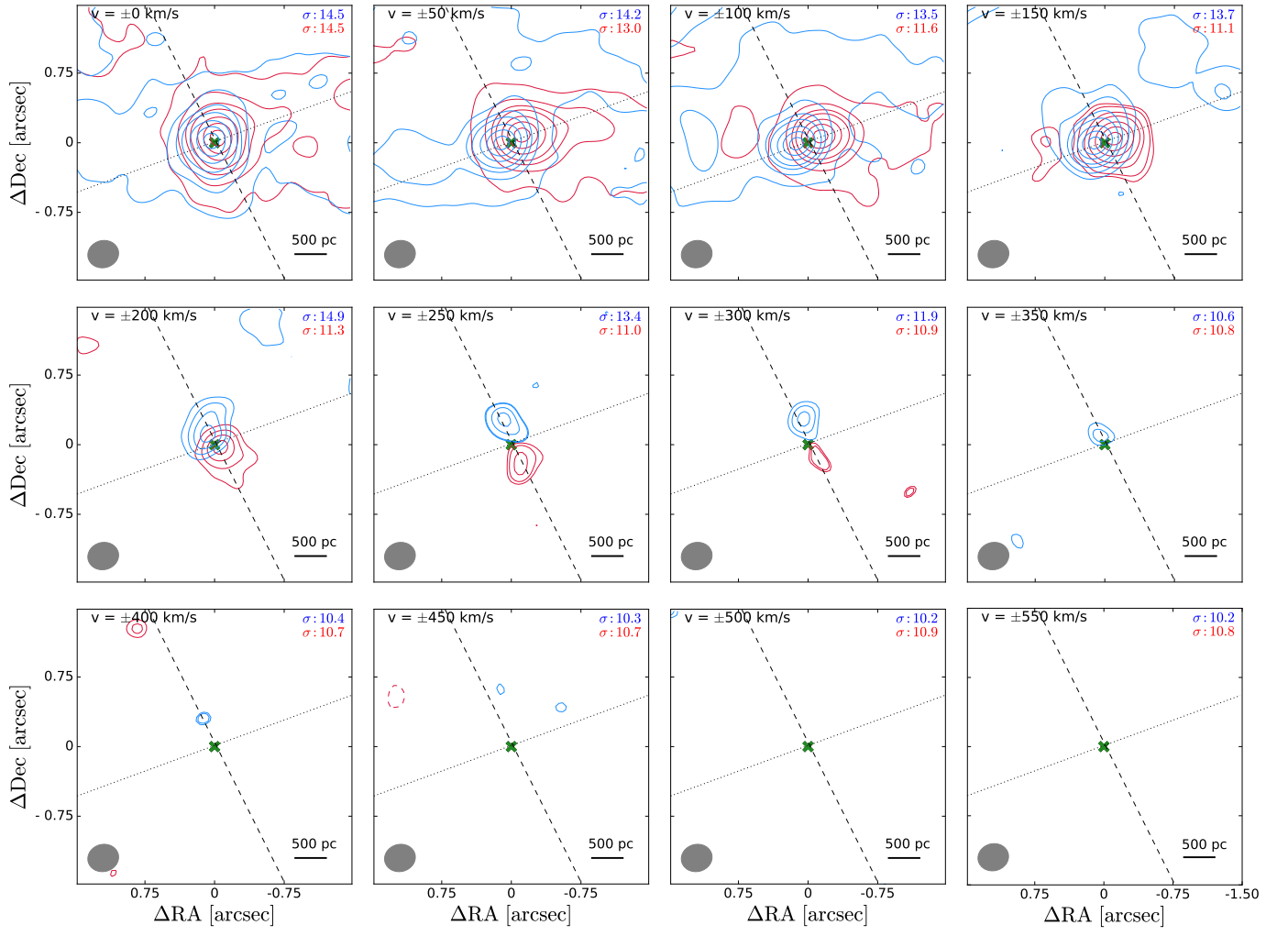


Fig. 17: 12112+0305 SW.

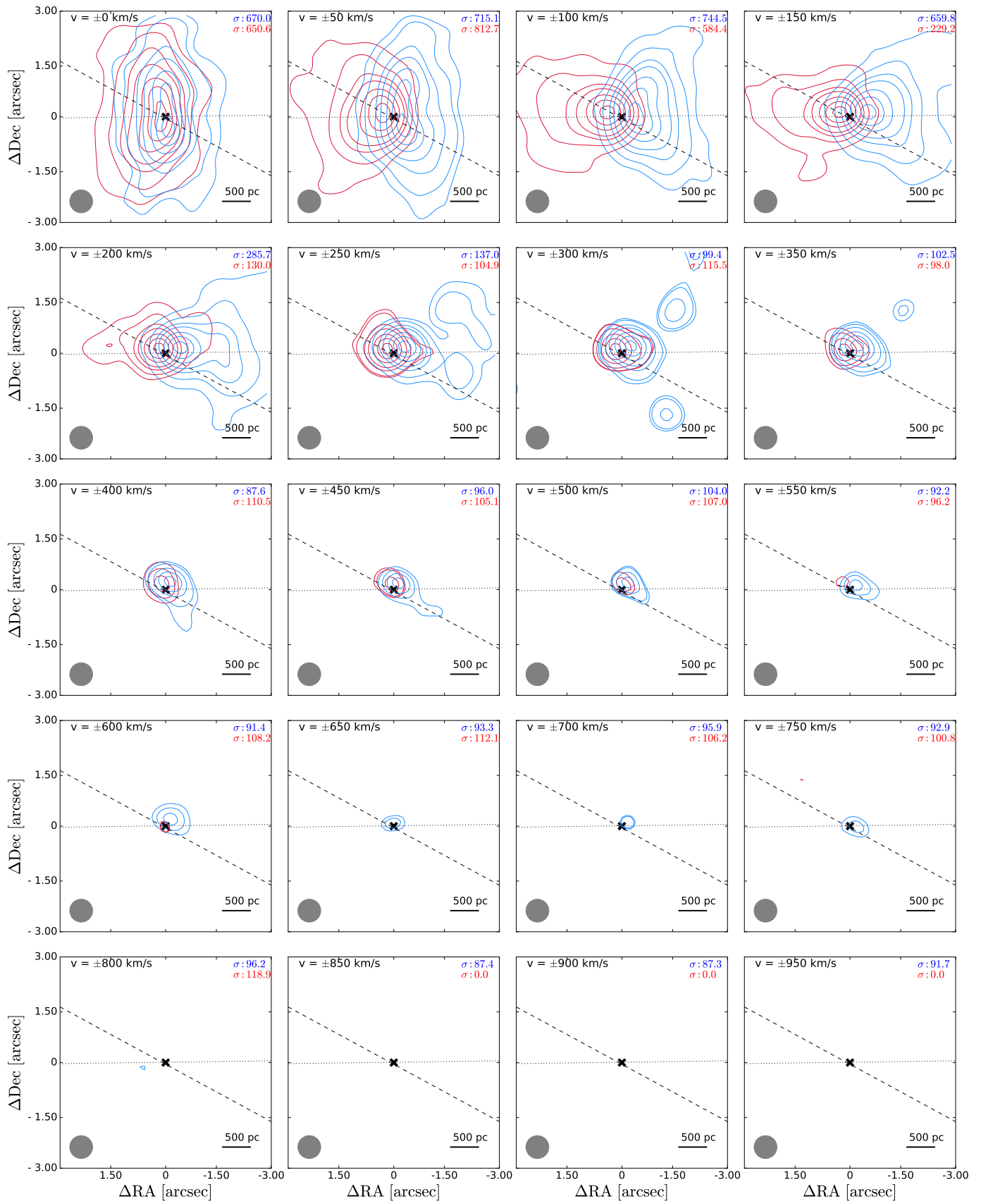


Fig. 18: 13120-5453.

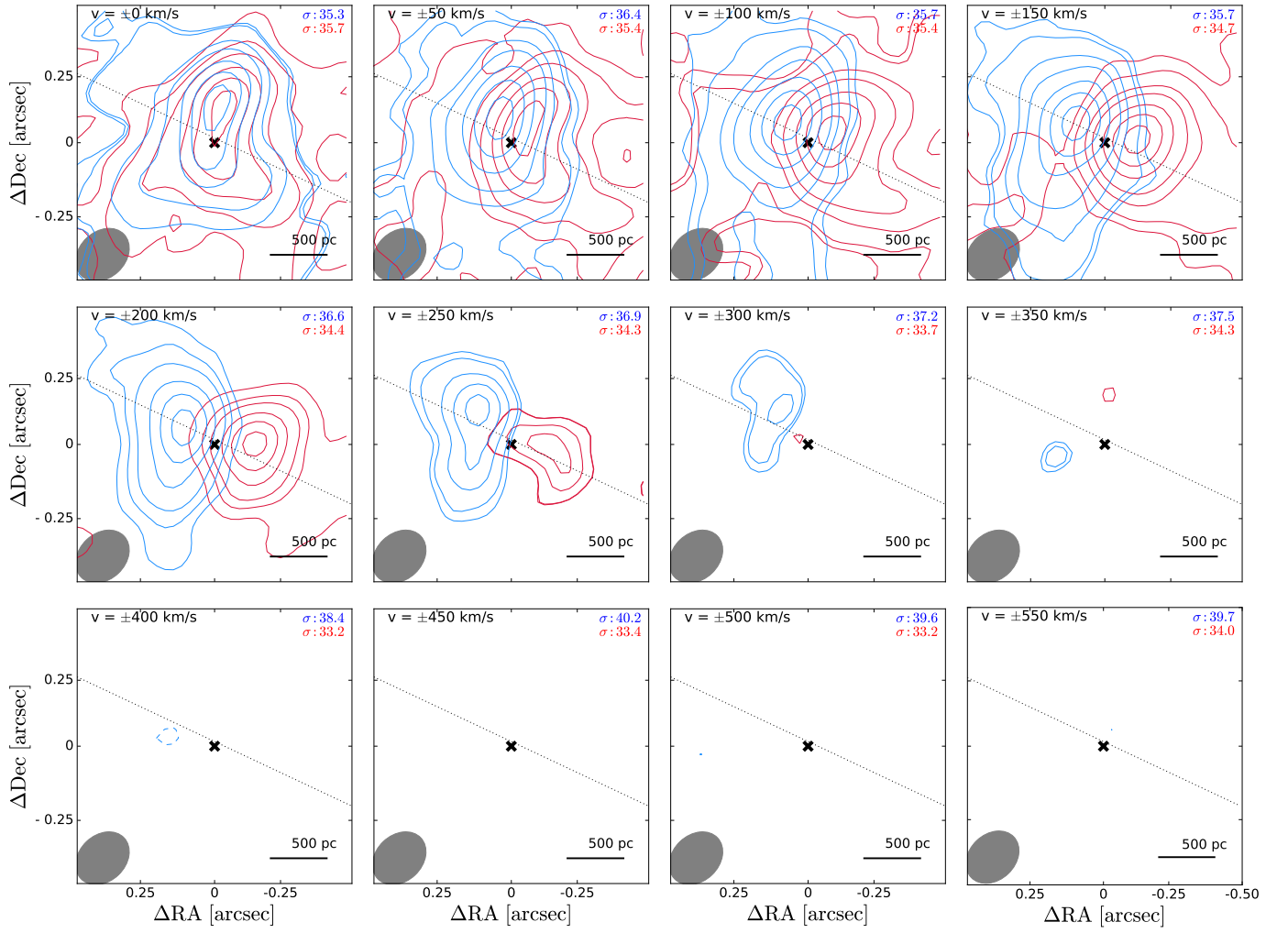


Fig. 19: 13451+1232 W.

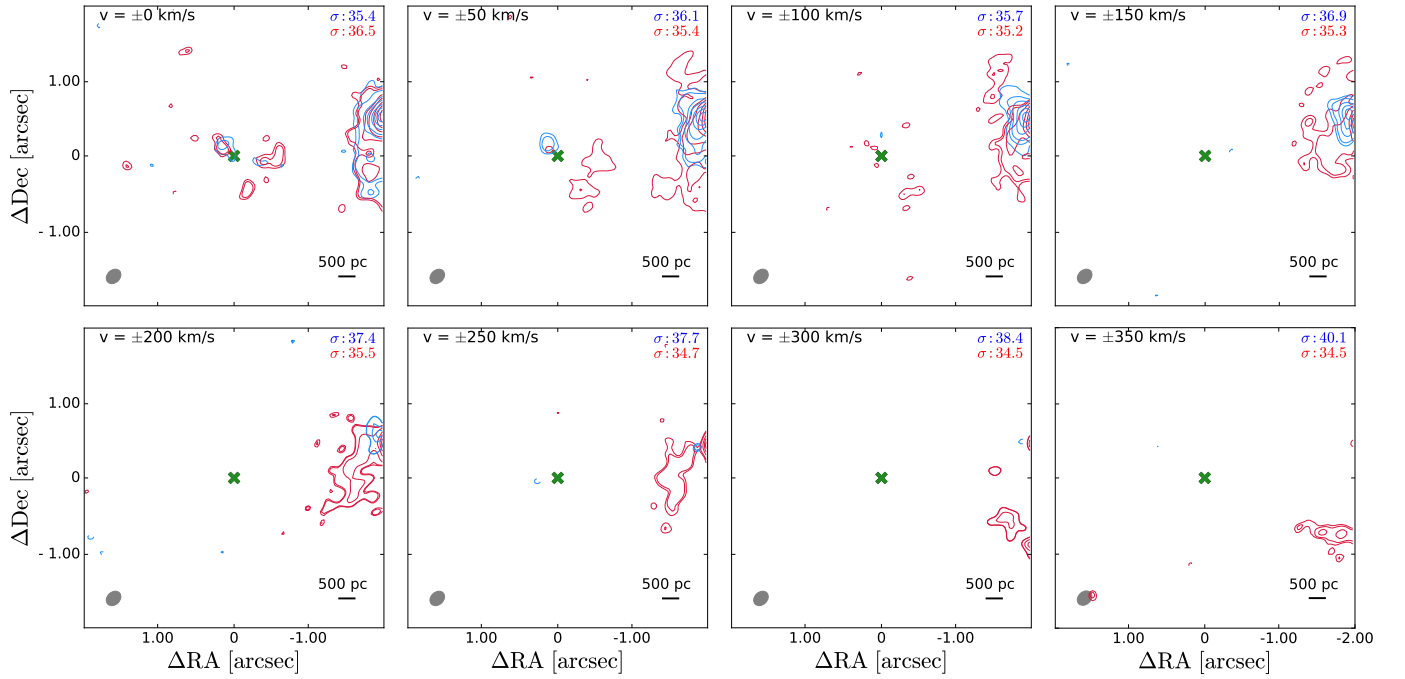


Fig. 20: 13451+1232 E.

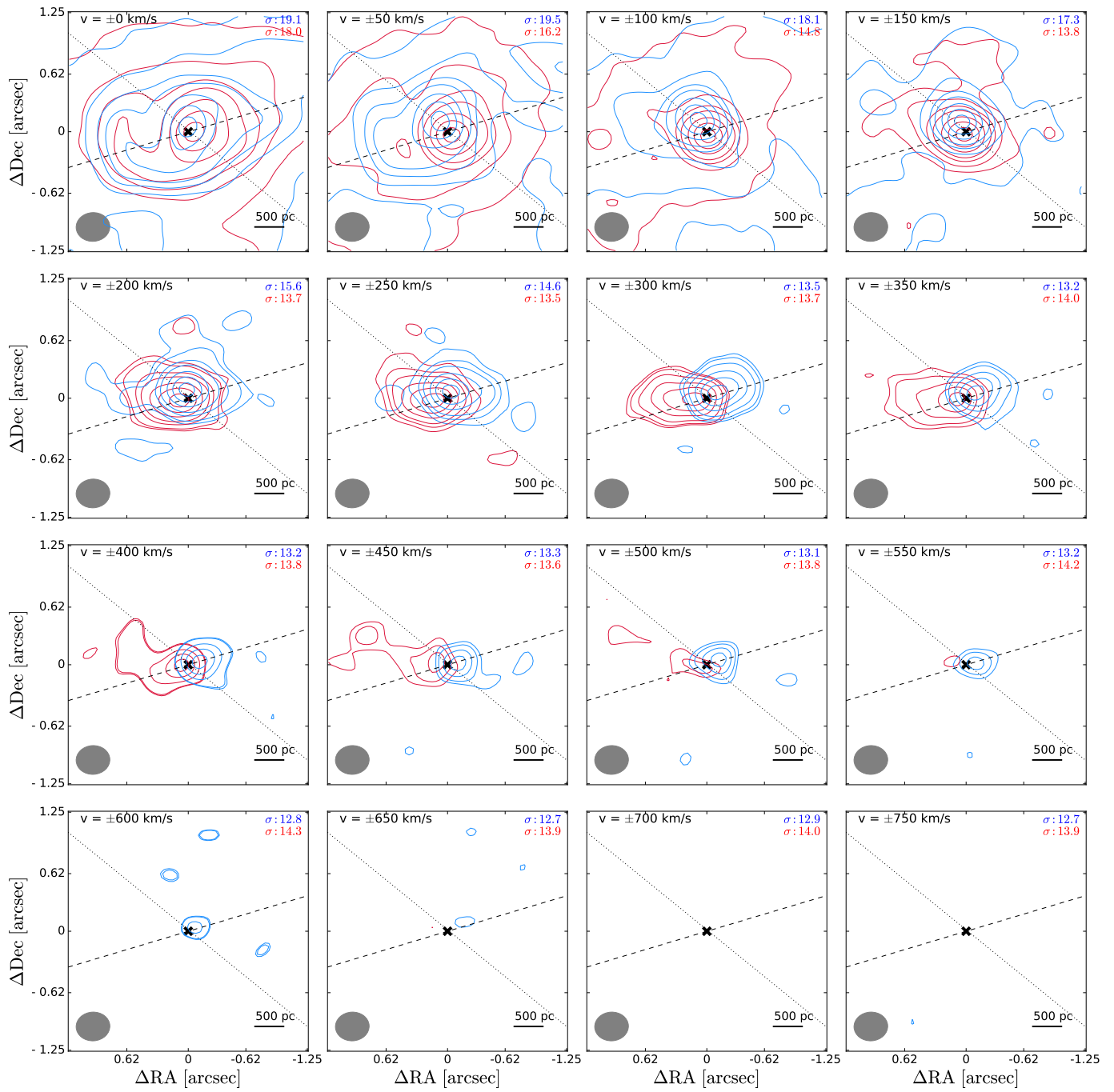


Fig. 21: 14348-1447 SW.



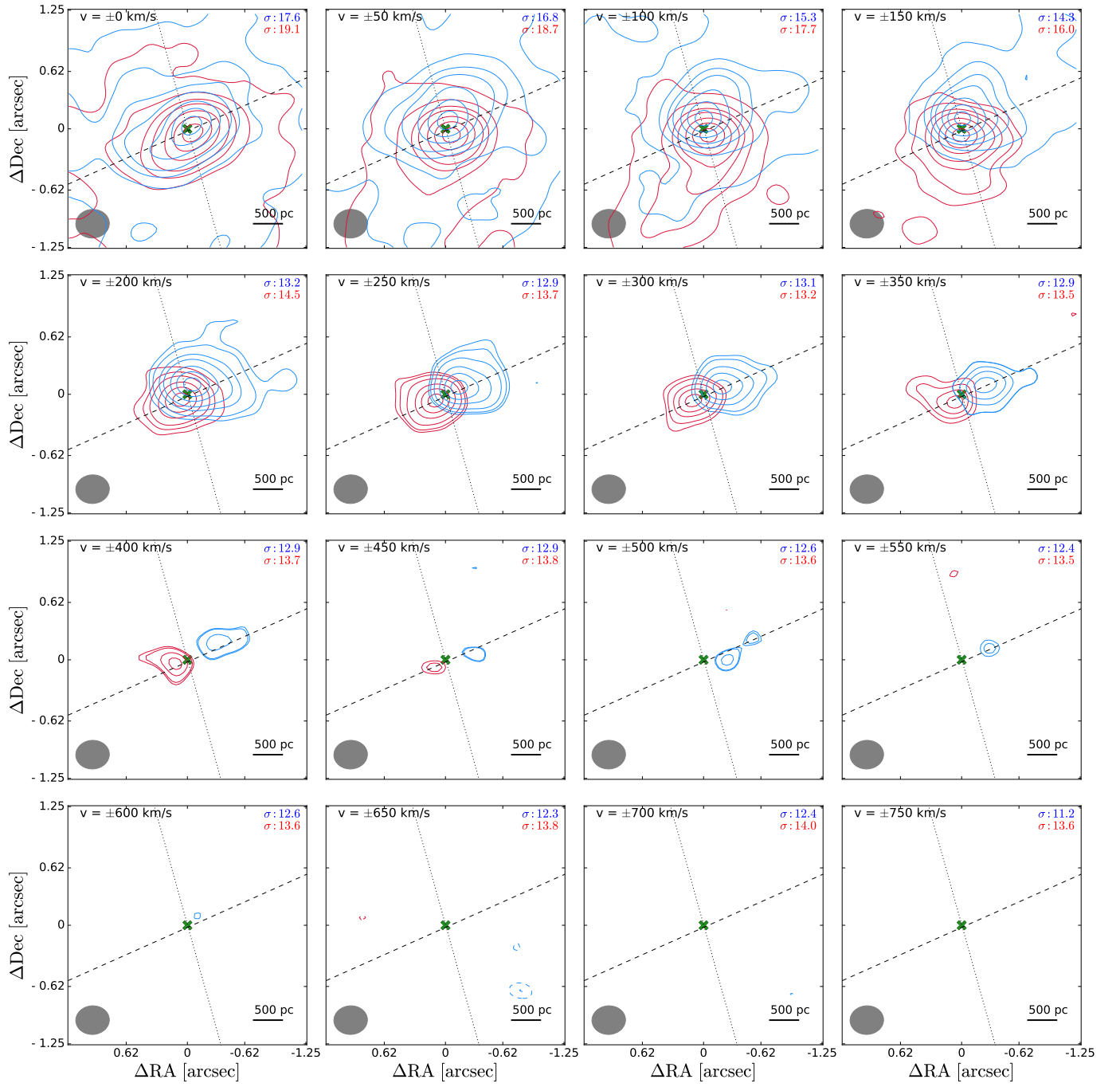


Fig. 22: 14348-1447 NE.

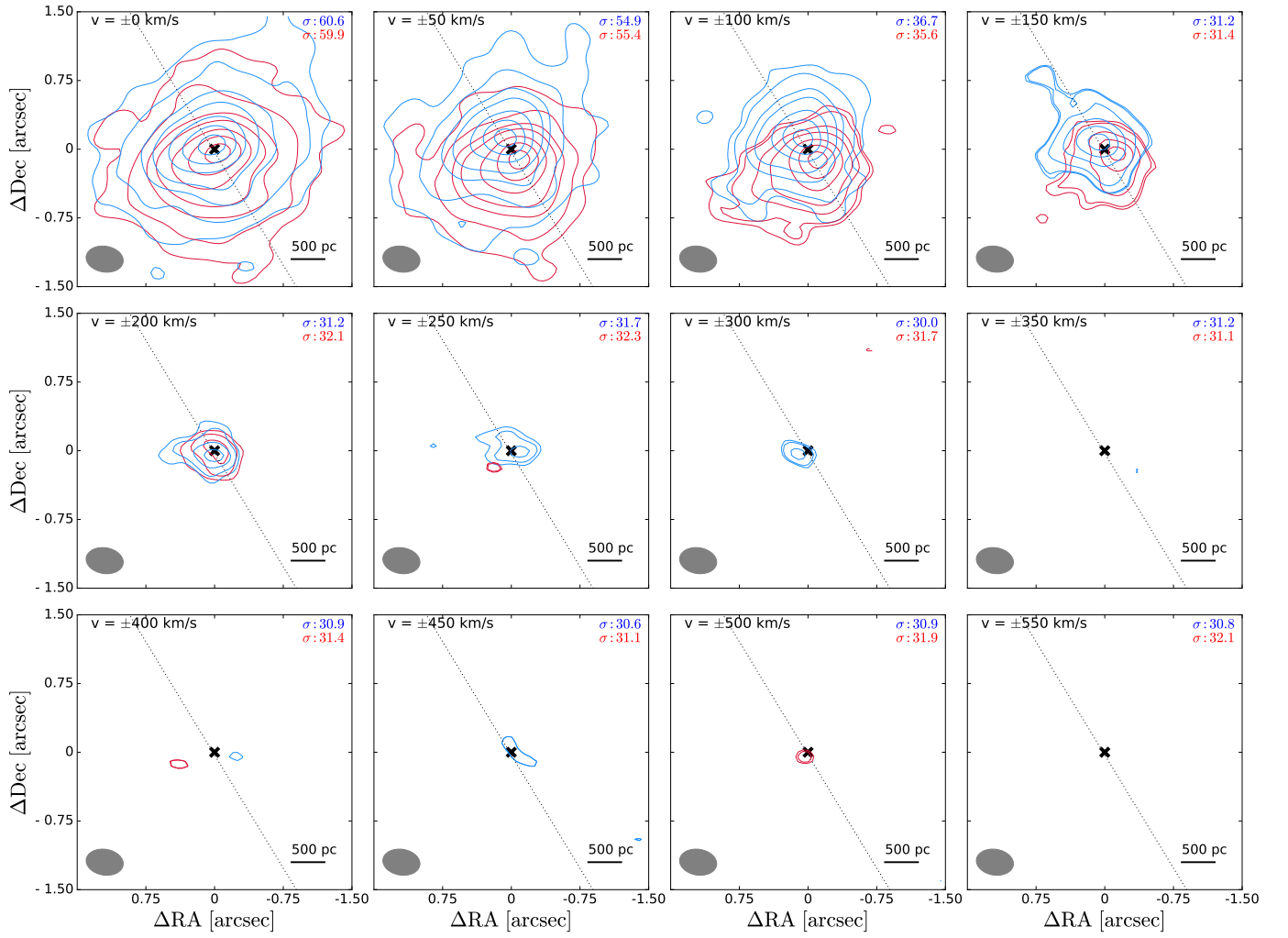


Fig. 23: 14378-3651.

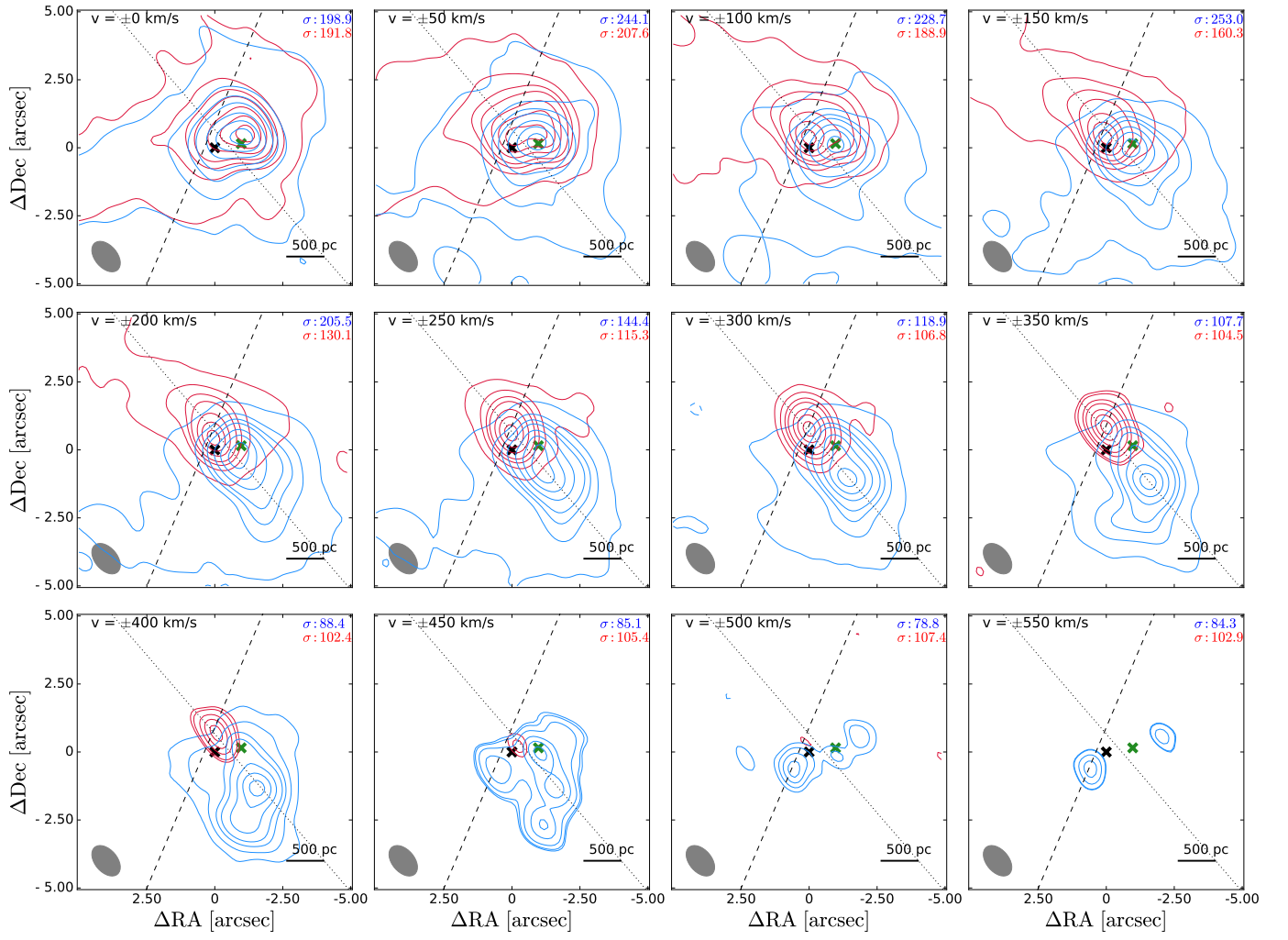


Fig. 24: 15327+2340.

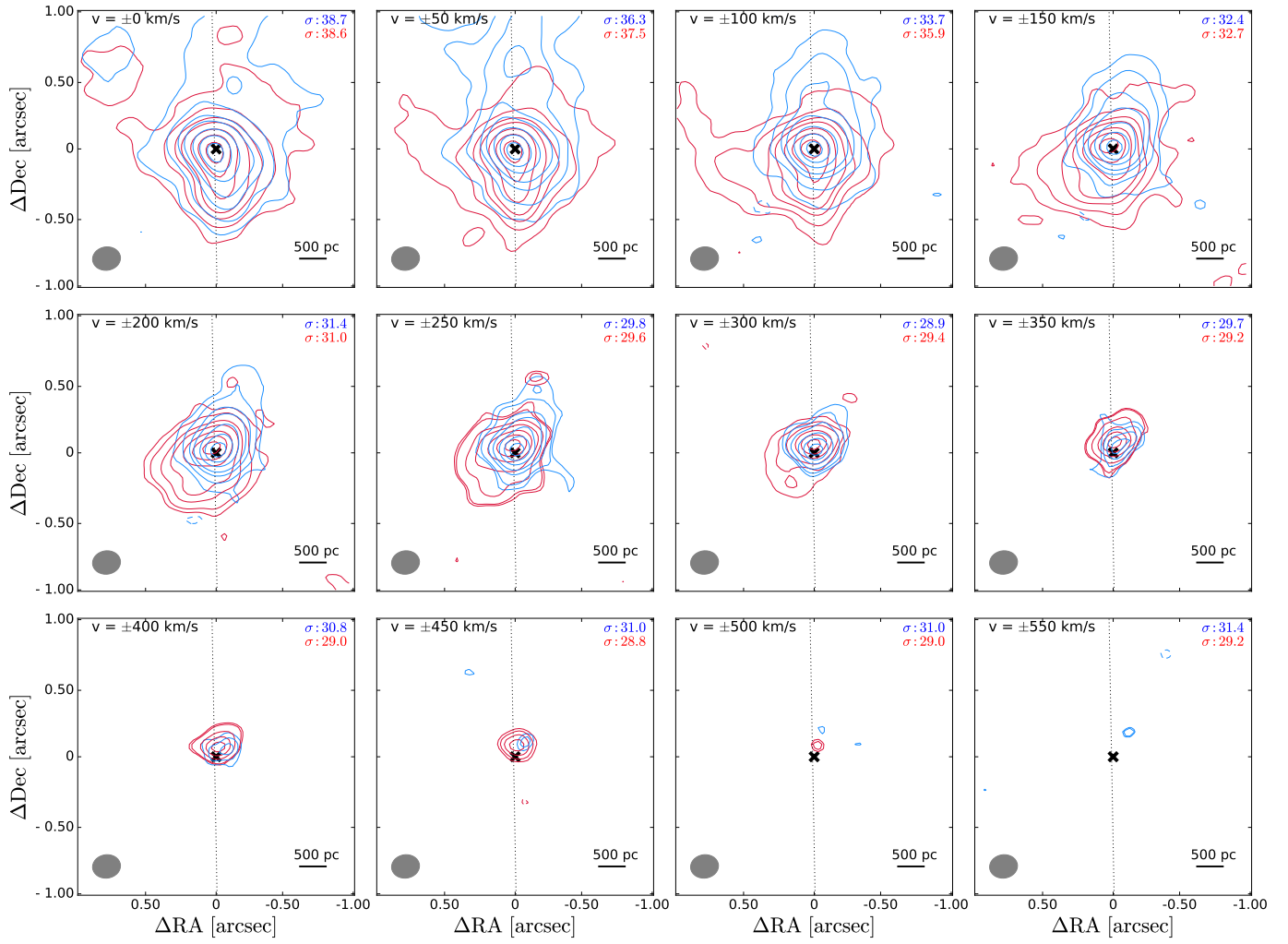


Fig. 25: 16090-0139.

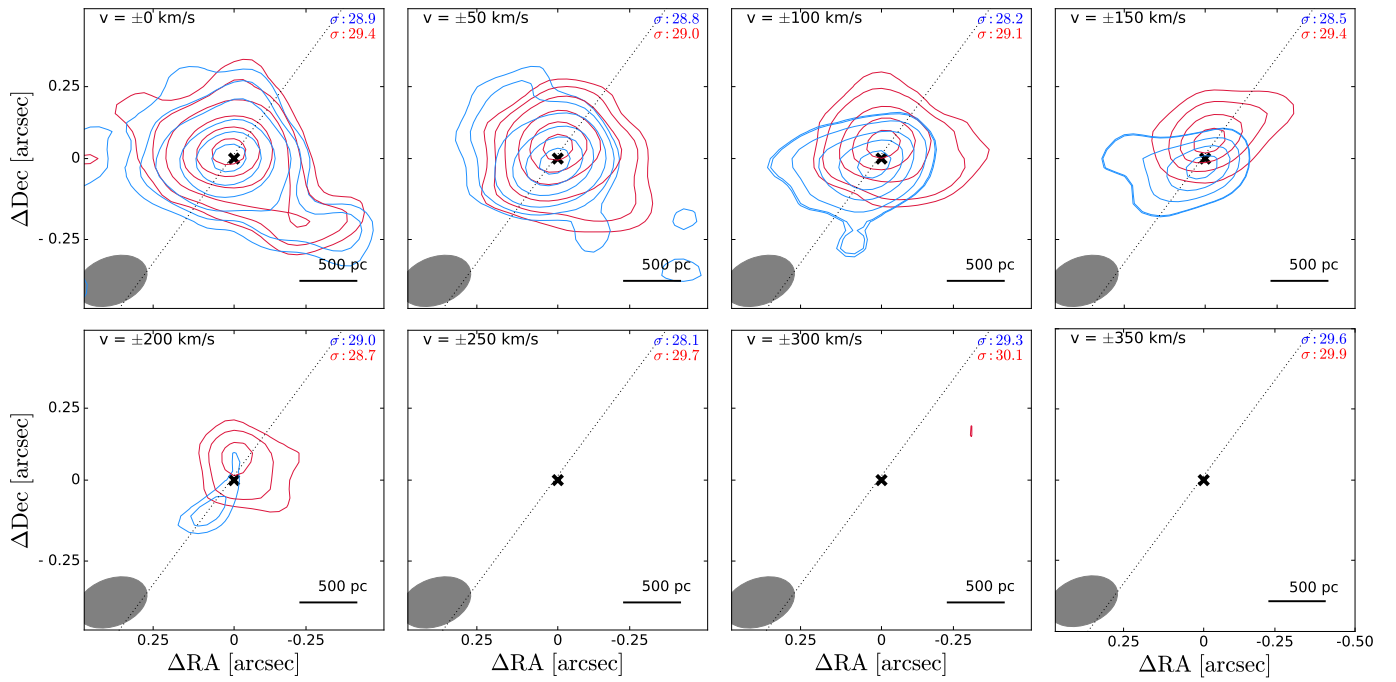


Fig. 26: 16156+0146 NW.

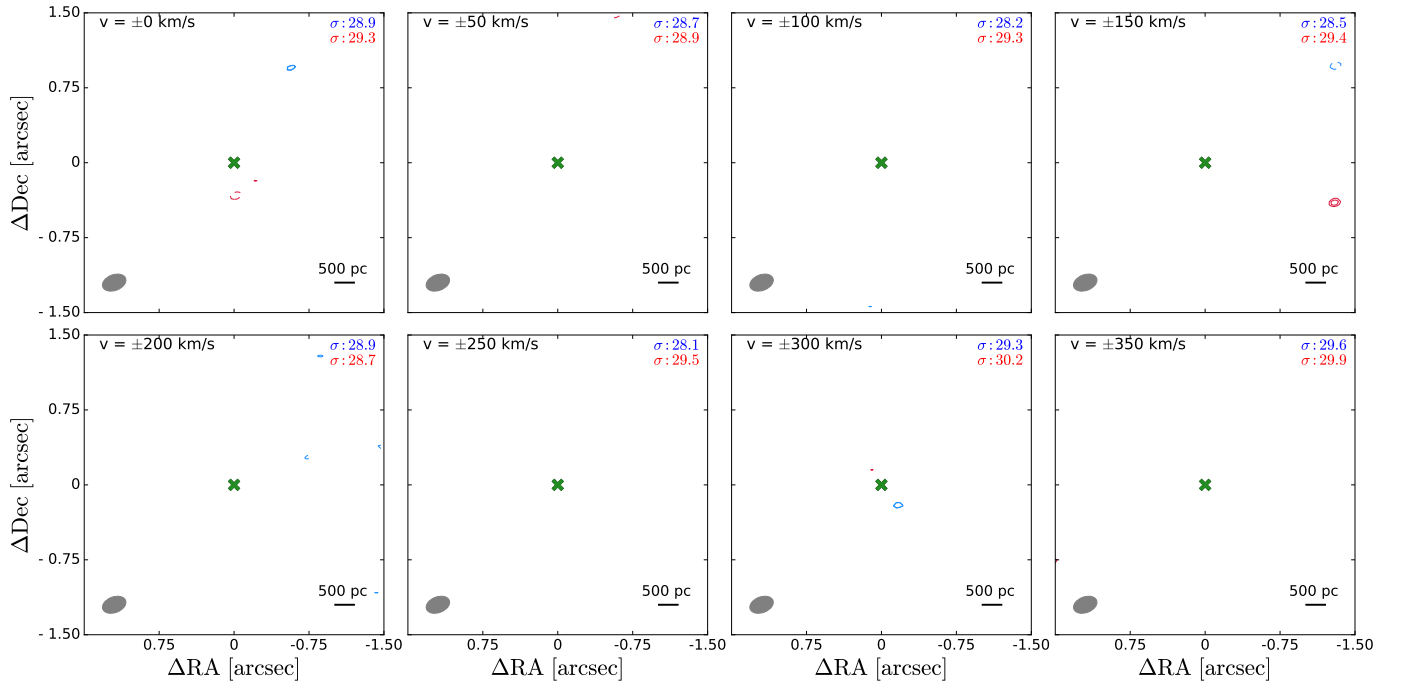


Fig. 27: 16156+0146 SE.

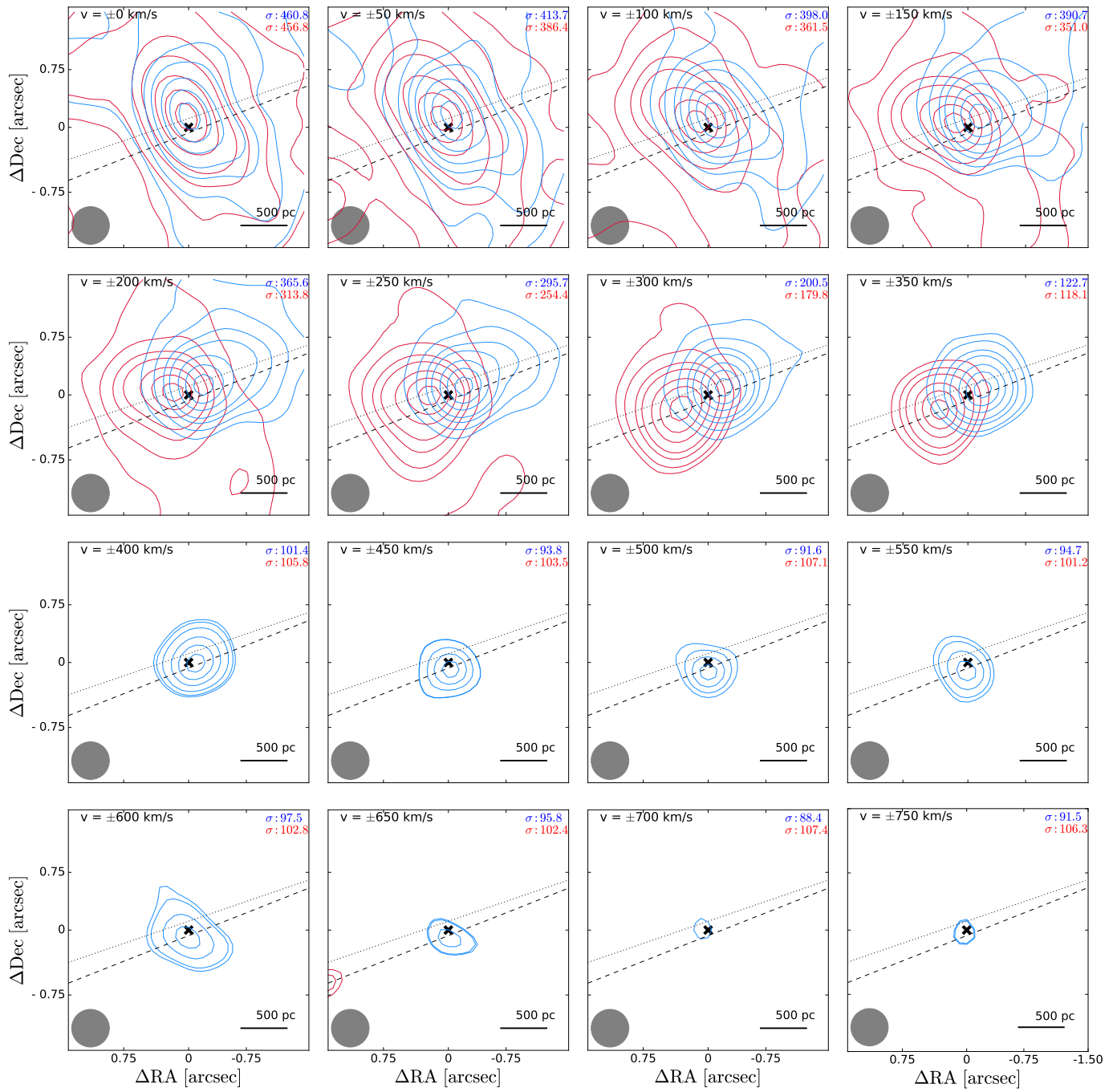


Fig. 28: 17208-0014.

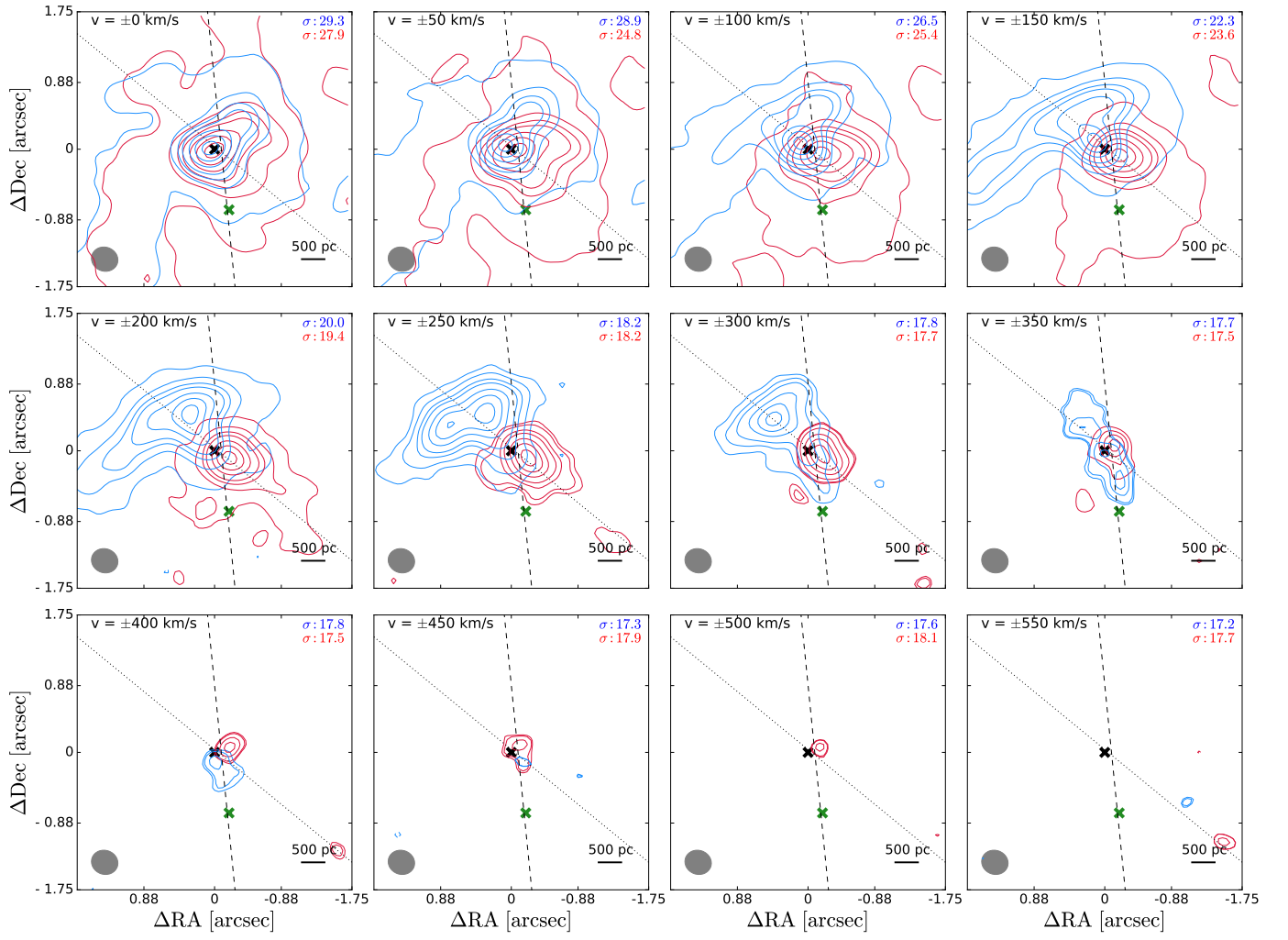


Fig. 29: 19297-0406 N.

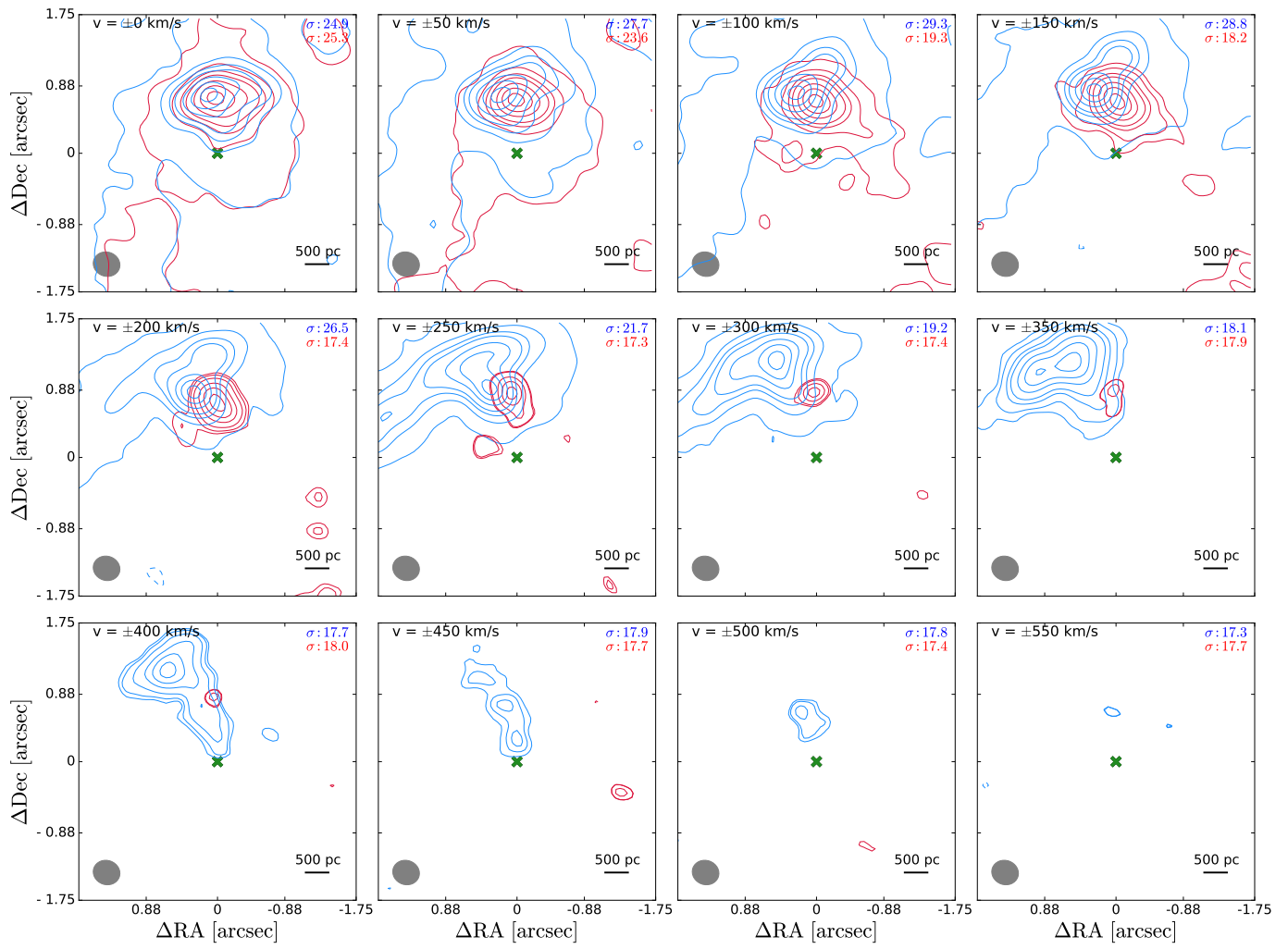


Fig. 30: 19297-0406 S.



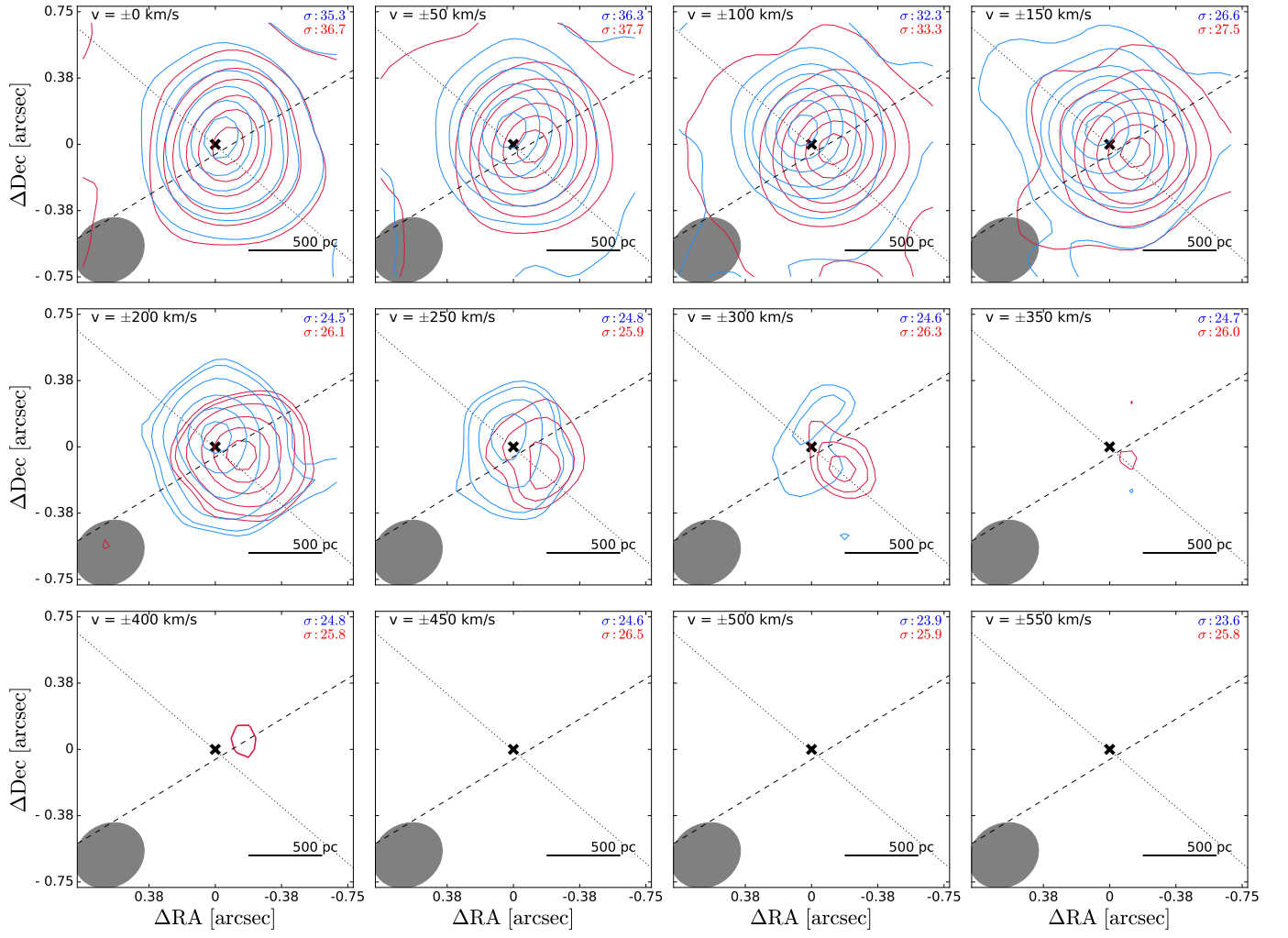


Fig. 31: 19542+1110.

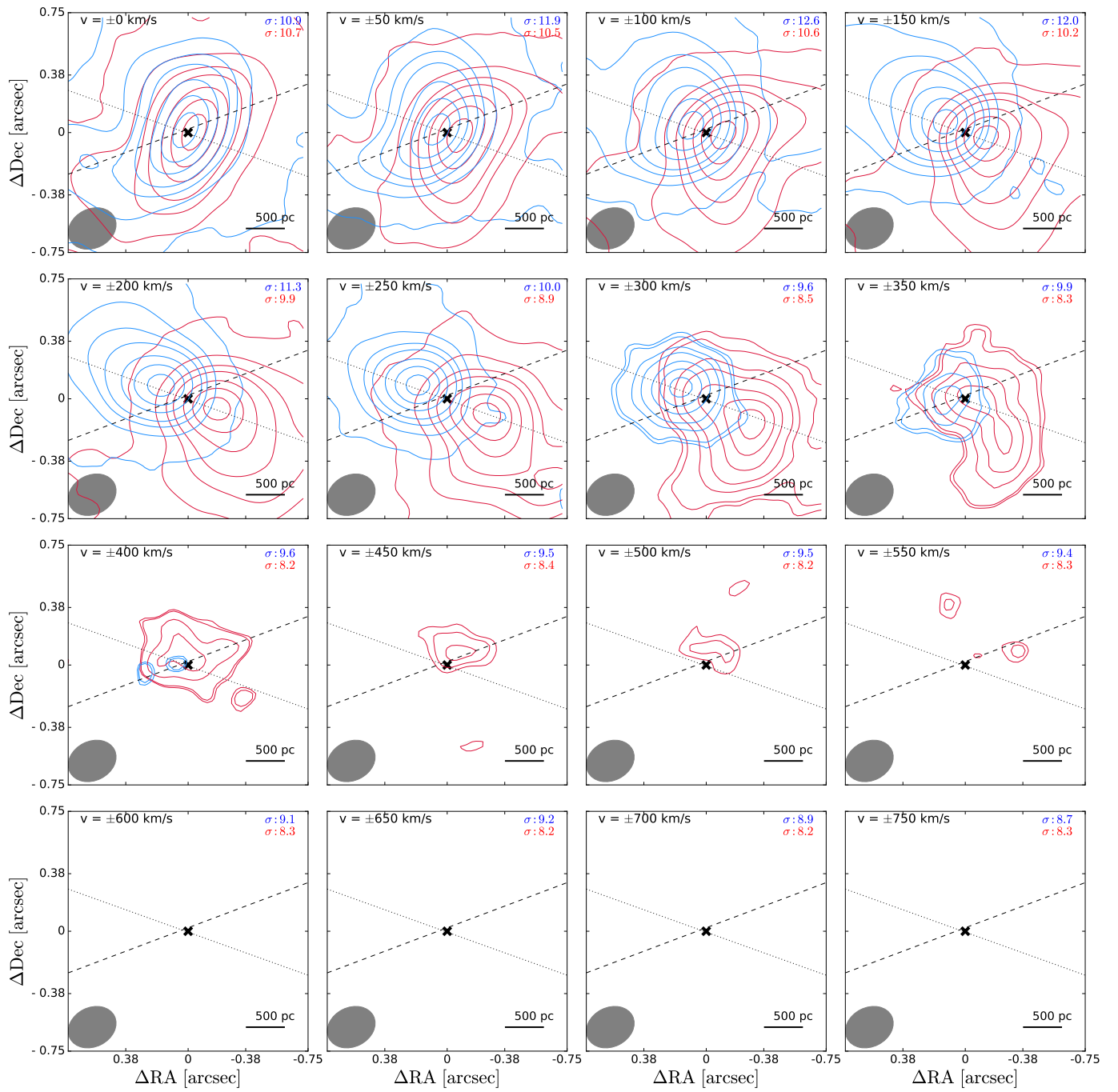


Fig. 32: 20087-0308.

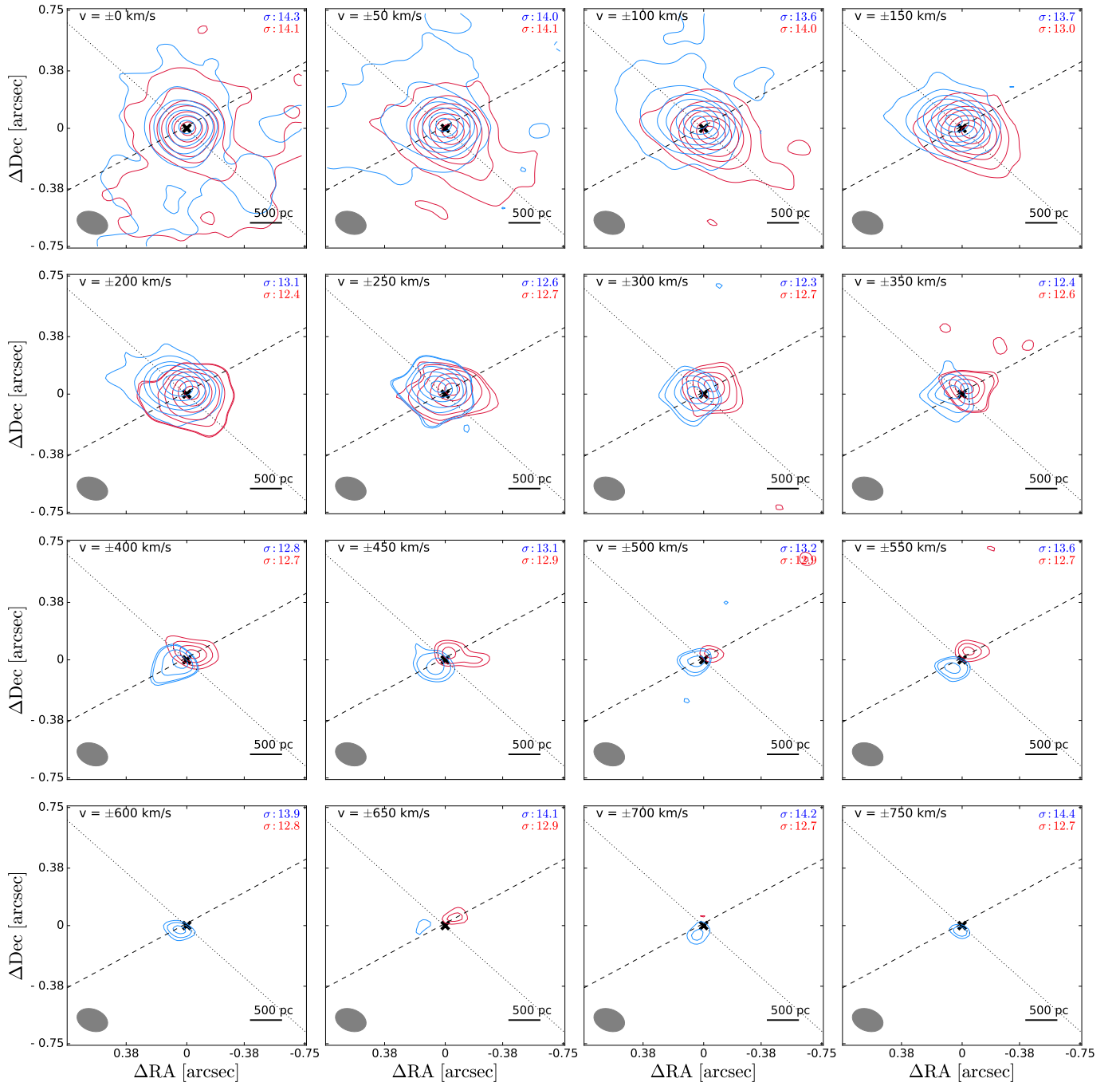


Fig. 33: 20100-4156 SE.

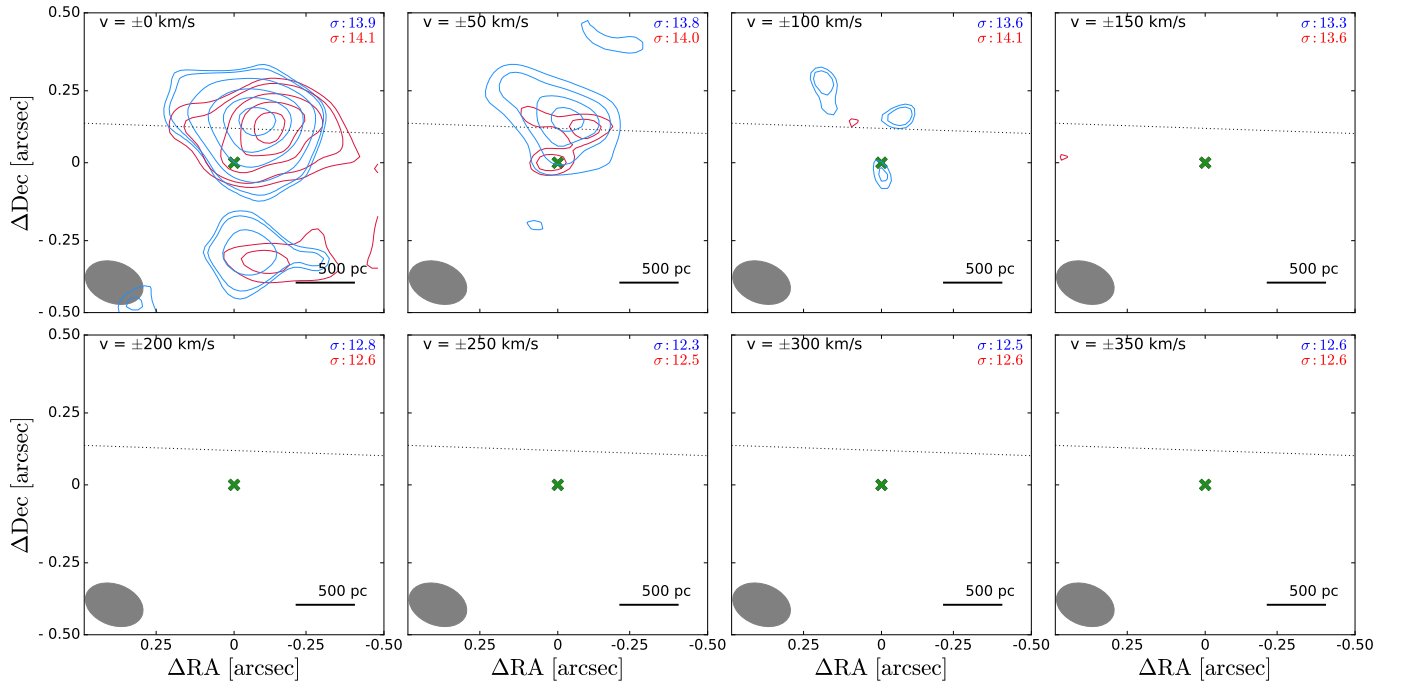


Fig. 34: 20100-4156 NW.

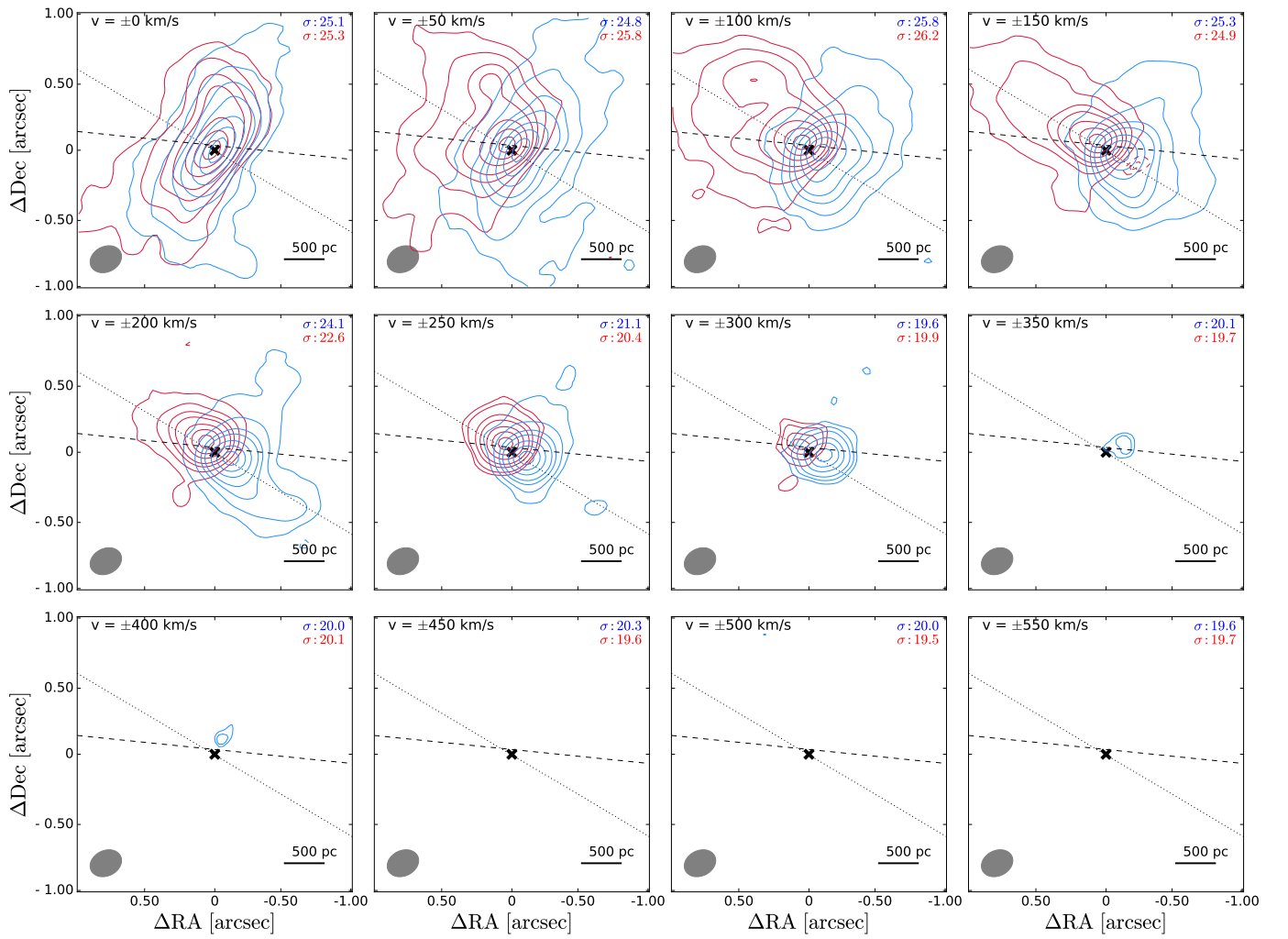


Fig. 35: 20414-1651.

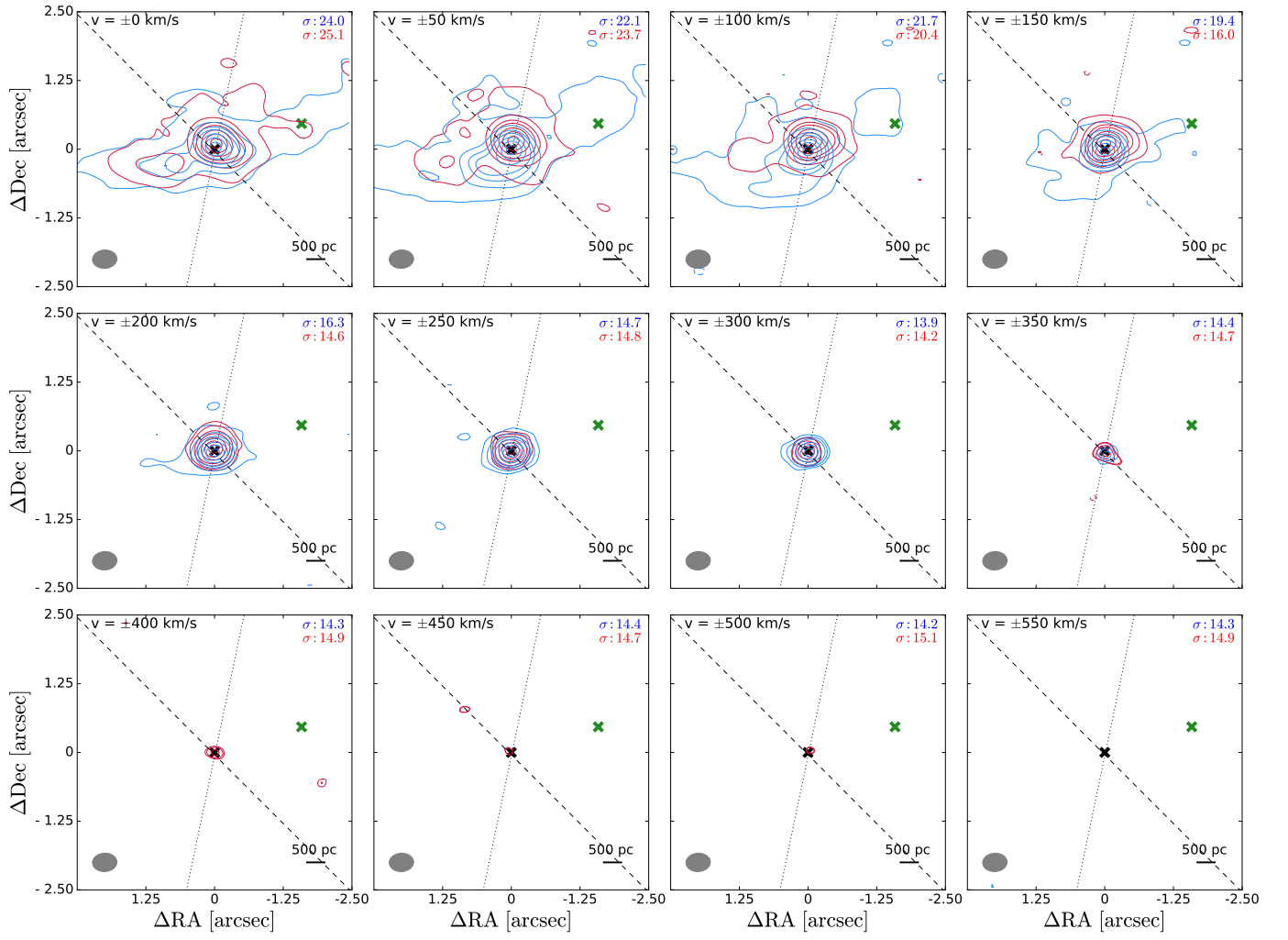


Fig. 36: 22491-1808 E.

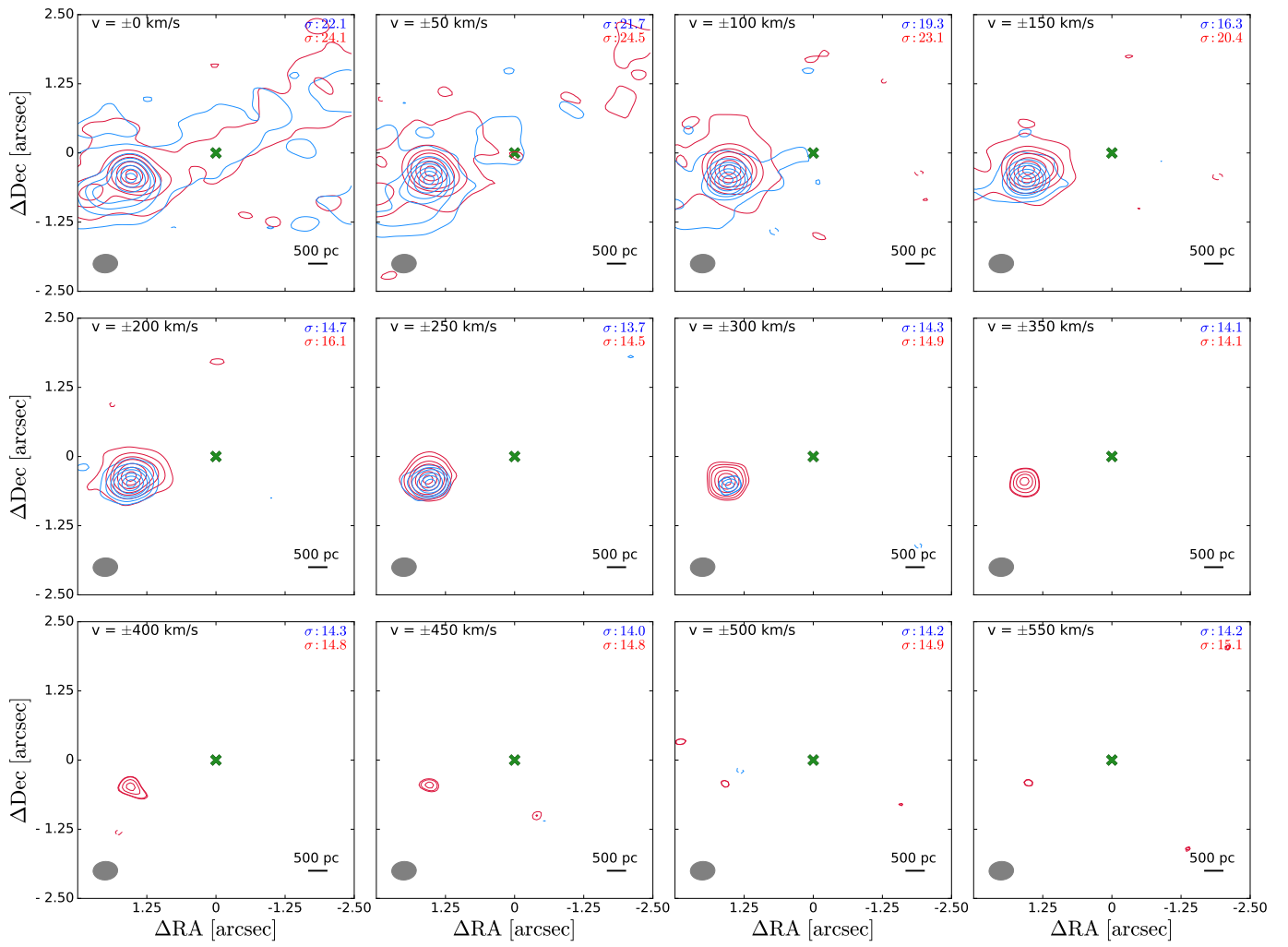


Fig. 37: 22491-1808 W.