(2.4 pc), on the other hand, must provide of good estimate of the local depth of the Taurus complex. Interestingly, L1495 and its associated stellar population is about 2 degrees across. This corresponds to a physical radius of about 2.5 pc for that region; the stellar population associated with L1495 appears to be about as deep as it is wide.

The other two stars for which VLBI trigonometric parallaxes have been measured are T Tauri Sb and HP Tau/G3. They are located, respectively, to the south-east and north-east of the Taurus complex (Figure 2). T Tauri was found to be at 146.7 ± 0.6 pc, while HP Tau is at 161.9 ± 0.9 pc (Loinard et al. 2007; Torres et al. 2009). Their proper motions are similar to one another, but significantly different from those of the stars associated with L1495 (Figure 2). The errors on our distance measurements (a few pc) are about 10 times smaller than the separation (about 30 pc) between the nearest and farthest stars in our sample. Thus, we are clearly resolving the depth of the Taurus complex along the line-of-sight.

Additional accurate distance measurements will be needed to reach definite conclusions regarding the three-dimensional structure of Taurus, but a few preliminary conclusions can be made. Taurus clearly appears to be about as deep as it is wide (25–30 pc), with the near edge associated with the western side and the far edge corresponding to the eastern side. In that configuration, the filaments in Taurus would be oriented almost along the Galactic center-Galactic anticenter axis (Ballesteros-Paredes et al. 2009). The space velocity of stars near the western edge of the complex are significantly different from that of the stars near the eastern edge.

Clearly, observations similar to those described here for several tens of young stars distributed across the entire complex would have the potential to reveal both the three-dimensional structure and the internal kinematics of the stellar population associated with Taurus. This would have important consequences for our understanding of star-formation.

2.3. *Perseus*

The Perseus cloud (Bally et al. 2008) contains a number of important sub-regions (for instance NGC 1333 and IC 348; Walawender et al. 2008; Herbst 2008) where star-formation is particularly active. For a long time, the distance to Perseus as a whole was assumed to be 350 pc, following Herbig & Jones (1983). Specifically, this distance was for NGC 1333, and was obtained from an analysis of several previous measurements. Somewhat later, Cernis et al. (1990) argued for a shorter distance to NGC 1333 (220 pc) based on extinction measurements. Many authors, however, have continued to use values between 300 and 350 pc. Indeed, it is not entirely clear if the different sub-regions are physically associated, and even if they are, there could be a significant distance spread because the entire region is about 6 degrees across (corresponding to 25–30 pc).

Hirota et al. (2008, 2011) have measured the distance to two young stellar objects in Perseus using VLBI observations of their associated water masers. They obtain a distance of 235 ± 18 pc for the source SVS 13 in NGC 1333, and 232 ± 18 pc for a young stellar source associated with the dark cloud L 1448 at the western edge of the Perseus complex. The projected separation between the two sources considered by Hirota et al. (2008, 2011) is about 1.5 degrees, or 6 pc. Their result that the two sources are at similar distances indicates that the western portion of Perseus can be assumed to be located at about 230–235 pc from the Sun. VLBI determination of the distance to young stars in the central part of Perseus (associated with B1) and of the eastern portions (B5 and IC 348) would enable a complete description of the structure of that important region.

2.4. *Serpens*

The Serpens molecular cloud complex (Eiroa et al. 2008) is an important region of star-formation extending for several degrees on the plane of the sky. Its distance has been a matter of some controversy over the years, with estimates ranging from 250 pc to 650 pc (see Eiroa et al. 2008 and Dzib et al. 2010 for a discussion). The distance used by most authors in the last 15 years is that reported by Straizys et al. (1996) based on stellar photometry: $d = 259 \pm 37$ pc. More recently, Straizys et al. (2003) extended their work to include many more stars covering an area of about 50 square degrees, and concluded that the front edge of the cloud was at 255 ± 55 pc, and its depth about 80 pc. In projection, Serpens is located toward a larger complex of molecular clouds called the Aquila Rift (Dame & Thaddeus 1985; Prato et al. 2008) believed to be at a distance of about 200 pc. The similarity between the distance to the Serpens cloud found by Straizys and coworkers, and that of the Aquila Rift suggests a physical association between the two.

Using VLBI observations, Dzib et al. (2010) measured the trigonometric parallax of the binary system EC95 in the Serpens core region. They obtain a distance of 414.9 ± 4.4 pc, significantly larger than