



The Ursa Major cluster is the nearest cluster to the Sun, with a core distance of approximately 20 pc. The cluster age is ~400 Myr, and it is losing members. The unbound members form a moving group – the Ursa Major / Sirius Moving Group – which surrounds the Sun. The moving group is shown in Figure 1, using data from Madsen *et al* (A&A, 381, 446, 2002).

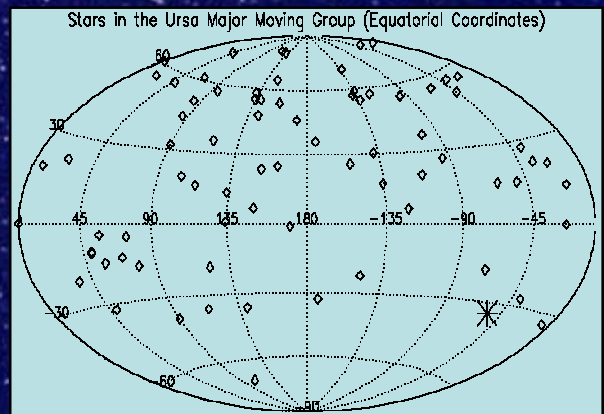


Figure 1. Location of the 77 cluster member stars identified by Madsen *et al* (2002). The location of the convergent point is indicated by the asterisk.

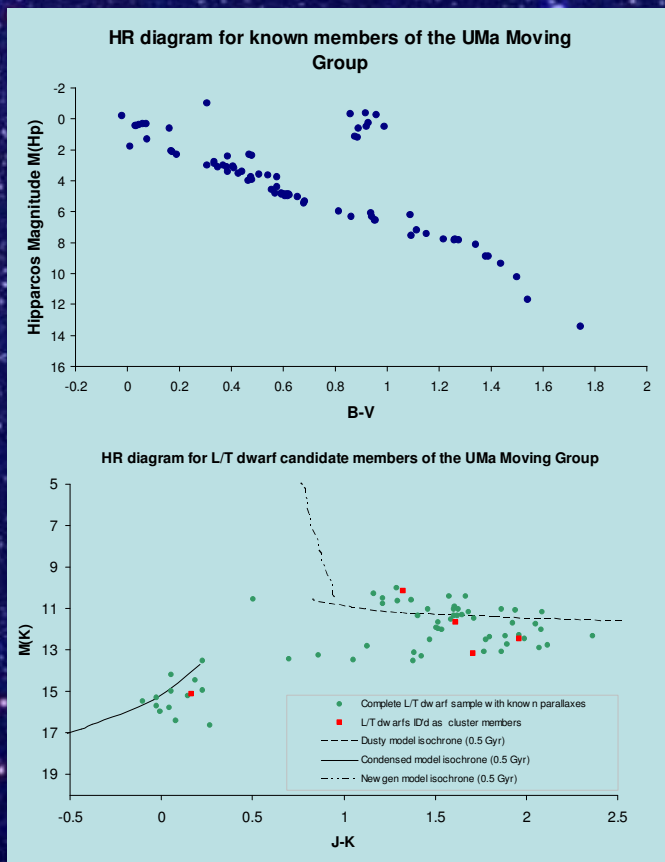


Figure 2. Upper panel: HR diagram for the 77 existing cluster member stars identified by Madsen *et al* (2002), constructed using Hipparcos data. Lower panel: M_K versus $J-K$ diagram for stars in the L & T dwarf list. 0.5 Gyr isochrones are plotted (explicit 0.4 Gyr data was not available for condensed & dusty models). Isochrone data from Baraffe *et al*, A&A, 402, 701, 2003, Chabrier *et al*, ApJ, 542, 464, 2000, Baraffe *et al*, A&A, 337, 403, 1998, Baraffe *et al*, A&A, 382, 563, 2002.

We have used the “moving cluster” method to show that 5 out of 70 field brown dwarfs for which proper motion & parallax data are available in the database of L and T Dwarfs compiled by Gelino, Kirkpatrick and Burgasser (see Kirkpatrick, IAU Symposium, 211, 189, 2003) are members of the Ursa Major Moving Group. Stars which are members of the moving group are found to satisfy the following criteria:

1. Their proper motions point to the convergent point.
2. We calculate a moving cluster distance ($d = v \sin \theta / 4.74 \mu$) equal to the parallax distance.
3. They lie on a sensible M_K , $J-K$ colour magnitude diagram (see Figure 2). This diagram produces a very good empirical 400 Myr isochrone. The other field brown dwarfs with known parallaxes have a rather scattered appearance due to their different ages and gravities.

Star [2MASS ID]	IR Spectral type	Parallax dist (pc)	Proper motion
J02431371-2453298	T6	10.7 ± 0.4	0.3548 ± 0.0041
J03454316+2540233	L1 ± 1	27.0 ± 0.4	0.1024 ± 0.0003
J12281523-1547342	L6 ± 2	16.5 ± 0.7	0.2240 ± 0.0013
J14460061+0024519	?	22.0 ± 1.5	0.1912 ± 0.0070
J15232263+3014562	L8	18.6 ± 0.4	0.2214 ± 0.0059

Table 1. Basic data on the five brown dwarf cluster members identified in this work.

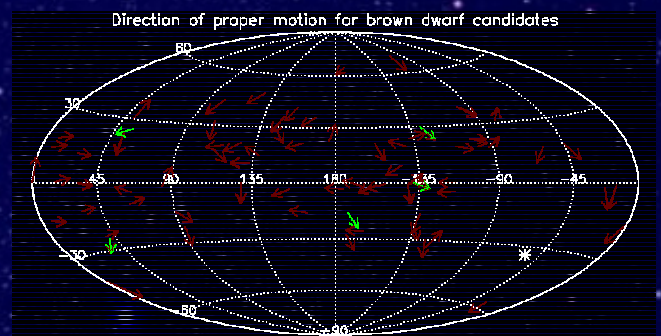


Figure 3. Proper motion directions for the brown dwarf sample, with the 5 cluster members identified in green (equatorial coordinates). The convergent point is indicated by the asterisk.