carmenes

II. CARMENCITA, the input catalogue

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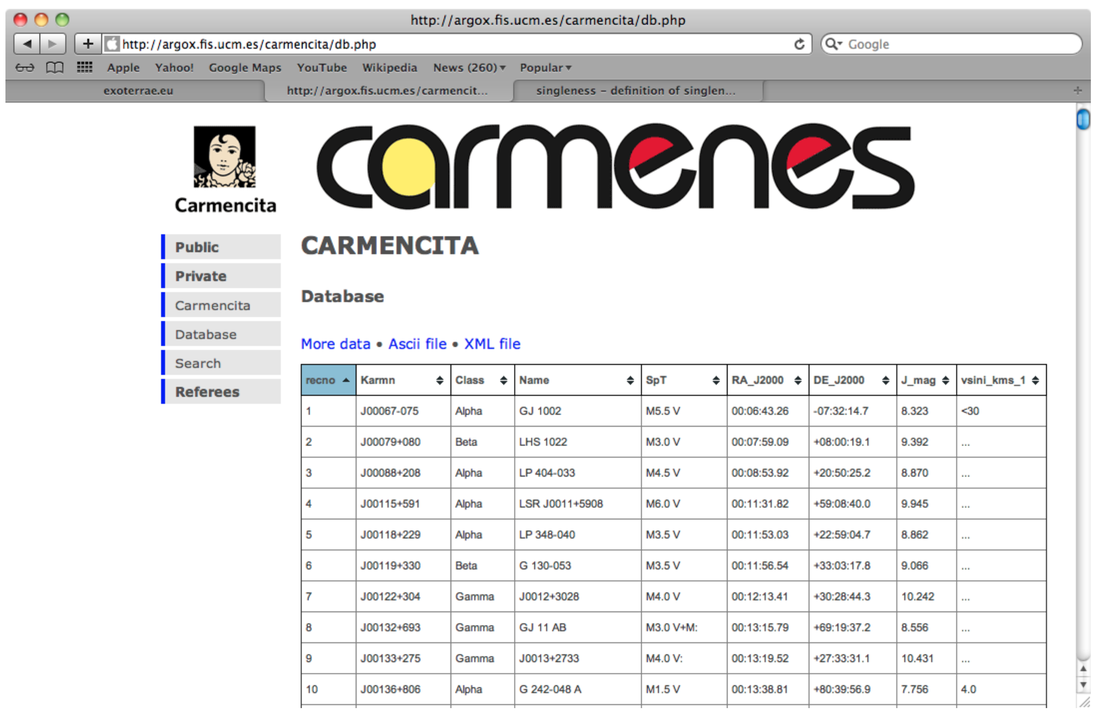
Abstract. CARMENES, the new near-infrared/optical high-resolution spectrograph for the 3.5 m Calar Alto Telescope, is expected to see its first light in early 2014. Before that, we must have chosen carefully the 300 M dwarfs to which CARMENES will look for terrestrial exoplanets with the radial-velocity method under guaranteed time. CARMENCITA, the *CARMENES Cool dwarf Information and daTa Archive*, our "input catalogue", will be the most comprehensive database of M dwarfs ever built, with dozens of parameters measured by us or compiled from the literature (from accurate coordinates and proper motions, through spectral types, magnitudes at numerous optical, near- and mid-infrared bands, Hα and X-ray emission, to *vsini*, Galactocentric space velocities or multiplicity at all separations) for over 1300 of the brightest, latest M dwarfs in the solar neighbourhood.



What is CARMENES? (see poster *CARMENES I* by Amado et al.)
a) An instrument (for the 3.5 m telescope on Calar Alto)
b) A consortium (of over 100 people in 11 centres in Spain and Germany)
c) A science project (to be carried out during guaranteed time; >600 nights)
d) All of the above ←

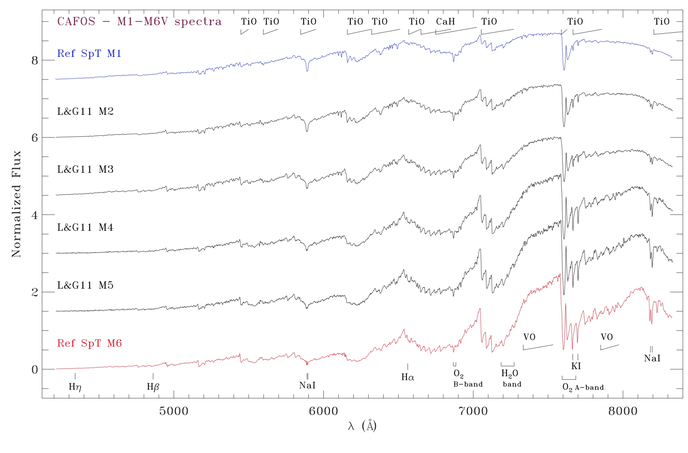
What is CARMENCITA? It is the input catalogue from where we will choose the best target sample for CARMENES, which will consist of the 300 brightest, latest, single M dwarfs visible from Calar Alto ($\delta > -23$ deg). Apart from restrictions on SpT, *J* magnitude (right Table) and declination, we also impose no close multiplicity ($\rho < 5$ arcsec; see poster *CARMENES III* by Béjar et al.), low activity (from Hα and X-rays; see posters *CARMENES IV* and *V* by Alonso-Floriano et al. and Lalitha et al.) and narrow lines (i.e. low *vsini*; see posters by Reiners et al. and Schäfer et al.)

SpT	*J* [mag]
≥ M6 V	<10.5
M5 V	<10.0
M4 V	<9.5
M3 V	<9.0
M2 V	<8.5
M1 V	<8.0
M0 V	<7.5

What does CARMENCITA contain (and what will it contain)? A huge amount of information, useful for many disciplines: coordinates, spectral indices, photometry at different bandpasses (UCAC3-4, 2MASS, *WISE*), parallaxes and spectrophotometric distances, rotational and radial velocities, Hα equivalent widths, X-ray count rates and hardness ratios, close and wide multiplicity data, proper motions, full references, and much more parameters (about 80 now; over 100 in the near future). We collect the data from the literature or, more recently, obtain them from new observations (CAFOS, CAFÉ, FastCam, FEROS). The private on-line catalogue, including preparatory science (i.e., hi-res imaging, lo-res and hi-res spectroscopy; see top figure), will be eventually public, as a CARMENES legacy. Today, for >1300 stars:

Karmn| Comp| Class| Flags| Name| GJ| SpT| Ref01| RA_J2000| DE_J2000| Ref02 | Ra_mag| Ref03| IN_mag| Ref04| J_mag | eJ_mag| H_mag | eH_mag| Ks_mag| eKs_mag| QFlag | Ref05| WideCompanion | WideWDS| Widerho_arcsec| eWiderho_arcsec| Ref06 | WideCompanionSpT| WideCompanionJ_mag| WideCompanionFeH| Ref07 | CloseMultiplicity| CloseWDS| Closerho_arcsec| eCloserho_arcsec| Ref08 | pi_mas| epi_mas| Ref09 | d_pc | ed_pc | Ref10 | pEWHalpha_A| Ref11 | 1RXS | CRT_s-1| eCRT_s-1| HR1|eHR1| HR2| eHR2 | Ref12 | vsini_kms-1| evsini_kms-1 | Ref13 | Vr_kms-1| eVr_kms-1| Ref14 | TiO5 | CaH2 | Ref15 | OtherActivityIndicators| Flare | Ref16 | P_d| Ref17 | muRA_masa-1| emuRA_masa-1 | muDE_masa-1| emuDE_masa-1 | Ref18 | MV_mag| Ref19 | U_kms-1| eU_kms-1| V_kms-1| eV_kms-1| W_kms-1| eW_kms-1| Ref20 | RV| Planet| Ref21 | Origin| Notes

What are the CARMENCITA advantages? • Compilation of previous and on-going M-dwarf catalogues and surveys (Ross, Luyten, Gliese, Palomar/MSU, Lépine & Gaidos 2011) with homogeneous selection criteria • Use of the latest data releases (e.g. HIP2 for parallaxes, PPMXL for proper motions) • Careful multiplicity analyses (important for distance, metallicity, kinematics) • On-going work in parallel: massive spectral-type determination (right figure), measurement of *vsini*, Hα, Hβ and *Vr*, multiplicity (SBs, resolved close and wide) • Other studies useful for CARMENCITA: metallicity of M dwarfs in wide systems with FGK primaries (see poster by Montes et al.), virtual-observatory searches for new, red, high-proper-motion stars (see poster by Solano et al.)



Calar Alto