

ATLASGAL, the APEX Telescope Large Area Survey of the Galaxy

F. Schuller¹, K. M. Menten¹, F. Wyrowski¹,
H. Beuther², S. Bontemps³, L. Bronfman⁴, Y. Contreras⁴,
T. Henning², F. Motte⁵, P. Schilke⁶, M. Walmsley⁷ and A. Zavagno⁸

¹MPIfR, Bonn, Germany; email: schuller@mpifr-bonn.mpg.de

²MPIA, Heidelberg, Germany; ³LAB, Bordeaux, France; ⁴Univ. de Chile, Santiago, Chile

⁵CEA/DSM/IRFU/SAP, Saclay, France; ⁶Universität zu Köln, Germany

⁷Osservatorio Astrofisico di Arcetri, Italy; ⁸LAM, Marseille, France

Abstract. Submillimeter continuum emission traces high molecular column densities and, thus, dense cloud regions in which new stars are forming. Surveys of the Galactic plane in such emission have the potential of delivering an unbiased view of high-mass star formation throughout the Milky Way. Here we present the scope, current status and first results of ATLASGAL, an ongoing survey of the Galactic plane using the Large APEX Bolometer Camera (LABOCA) on the Atacama Pathfinder Experiment (APEX) telescope at the Chajnantor plateau in Chile. Aimed at mapping 360 square degrees at 870 μm , with a uniform sensitivity of 50 mJy/beam, this survey will provide the first unbiased sample of cold dusty clumps in the Galaxy at submillimeter wavelengths. These will be targets for molecular line follow-up observations and high resolution studies with ALMA and the EVLA.

Keywords. Surveys, submillimeter, stars: formation, ISM: structure, Galaxy: disk

The ATLASGAL project aims at mapping the cold dust content of the inner Galactic disk, in a uniform, systematic way. Observations are performed using the Large APEX Bolometer Camera (LABOCA), installed at the APEX 12 m telescope ((Güsten *et al.* 2006)) on a 5100 m high site in Chile. LABOCA is composed of 295 bolometers operating at 870 μm (Siringo *et al.* 2009). Our goals are to cover $\pm 60^\circ$ in Galactic longitude, over $\pm 1.5^\circ$ in latitude, to an r.m.s. of 50 mJy/beam. For typical cold dusty clumps, at 1–10 kpc distance, this corresponds to 5- σ detection limits of ~ 1 to a few 100 M_\odot .

Based on the first 95 deg² of data acquired in 2007, a preliminary catalogue of over 6000 compact sources brighter than 0.25 Jy/beam could be extracted; about 30% of them can be associated with infrared sources from the MSX catalogue (Price *et al.* 2001), but most sources have no bright infrared counterparts. They could correspond to the earliest stages of (massive) star formation.

The observations should be completed by the end of 2009; the raw data will become public one year after each observing period. Advanced data products (calibrated maps, source catalogues) will also be made available upon completion. A detailed description of the survey and early results are presented in Schuller *et al.* (2009).

References

- Güsten, R., Nyman, L. Å., Schilke, P., Menten, K., Cesarsky, C., & Booth, R. 2006, *A&A* 454, L13
Price, S. D., Egan, M. P., Carey, S. J., Mizuno, D. R., & Kuchar, T. A. 2001, *AJ* 121, 2819
Schuller, F., Menten, K. M., Contreras, Y., *et al.* 2009, *A&A* in press
Siringo, G., Kreysa, E., Kovács, A., *et al.* 2009, *A&A* 497, 945