

Additions to Appendix B of
The ALMA Telescope – The Story of a Megascience Project
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Puschino Radio Astronomy Observatory – The Puschino Radio Astronomy Observatory was founded on 11 April 1956, a project of the Lebedev Physical Institute. Its facilities include four radio telescopes, among them a 22 m antenna that can support millimeter observations. It began operation in 1959 with observations of the Sun, planets, and the interstellar medium. Its most recent use was as a ground station for the Radioastron space VLBI mission.



Figure B.15 The Puschino 22 m telescope. Credit: Courtesy of Yuri Kovalev, reproduced by permission.

South Pole Telescope (SPT) – The South Pole Telescope is a 10 m diameter unblocked aperture telescope at an elevation of 2800 m at the Amundsen-Scott South Pole Station. It began operation in 2011 with capability of observations in the mm and submm bands. Its principal mode of operation was surveys of the Southern Sky which were directed to studies of the cosmic microwave background radiation.

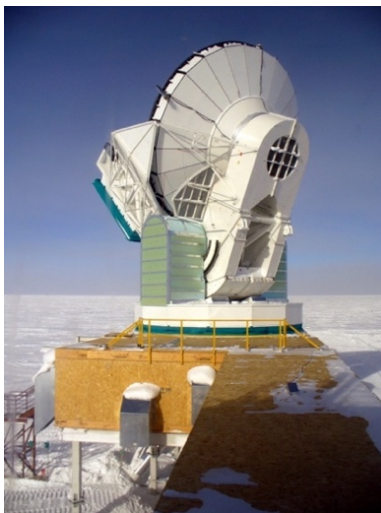


Figure B.16 The South Pole Telescope. Credit: Amble, CC BY-SA 3.0

Receiver Lab Telescope (RLT) – The Receiver Lab Telescope of the SAO was installed in 2002 on Cerro Sairecabur (40 km north of the ALMA site) at an elevation of 5525 m, the highest elevation of any astronomical telescope on Earth. The 80 cm aperture telescope had receivers operating at 800 GHz and 1.6 THz and a Fourier Transform spectrometer. The RLT demonstrated that ground-based submm observing was possible. Detections were made of the J=13-12 and J=11-10 lines of CO in the Orion Nebula. Instrumentation developed for the RLT was flown on the Herschel Mission. The RLT stopped operating in 2009 and has been removed from the site.



Figure B.17 The Receiver Lab Telescope (RLT) dome on top of its container. The RLT was powered by solar panels. Mounting the telescope to the ground would have required obtaining permissions that was precluded by this portable arrangement. Credit: Daniel Marrone, reproduced by permission.

Antarctic Submillimeter Telescope/Remote Observatory (AST/RO) – The Antarctic Submillimeter Telescope/Remote Observatory operated from 1995 To 2005 at the Amundsen-Scott South Pole Station. It had an aperture of 1.7 m and was equipped with receivers capable of observing at 230 GHz and several higher frequency bands. Among its results are the first detection of the NII line in the Large Magellanic Cloud and surveys of CO lines and NII emission in the Galaxy.



Figure B.18 Figures waving from the platform of AST/RO. A. Stark is in the blue parka. The US South Pole Dome and a transport plane are in the background. Credit: T. Bania, reproduced by permission.