The Future of the 210-276 GHz Band at the James Clerk Maxwell Telescope

Glen Petitpas (Maryland), **Rene Plume** (Calgary), **Christine Wilson** (McMaster), **Paul Feldman** (NRC), **George Mitchell** (St. Mary's)

Overview:

The future of Receiver A3 (RxA3; see Figure 1) at the JCMT is uncertain. The JCMT is currently one the best 210-276 GHz telescopes in the world and the largest one at a site with reliably good observing conditions in this band. The loss of this frequency coverage will be a huge scientific loss to the JCMT community.

The current official stance is "**...that should RxA3 fail catastrophically sometime in the medium-term, it is probable that there will not be the effort, funding or scientific priority to ensure its resurrection.**" For the official report, please visit www.jach.hawaii.edu/JACpublic/JCMT/About_JCMT/Newsletter/n18/rxa3.html

It is important to let the Advisory Panel and JCMT management know that the continued availability of RxA3 (or its replacement) is a priority for the scientific community.

Please note: we are not trying to divert any funding from other projects such as SCUBA2, but trying to ensure that the amounts of money that are needed to keep RxA3 or some form of replacement in operation are made available as needed.

Options:

1) The current RxA3 could be **upgraded** to eliminate the obsolete technology and parts that are most likely to fail. The cost of this upgrade is estimated at a **few thousand dollars** (plus labour). This should keep it operational until the Atacama Large Millimeter Array (ALMA) renders the need for a 210-276 GHz receiver at the JCMT less crucial.

2) A **replacement** to RxA3 could be fabricated that uses/tests forthcoming and existing **ALMA technology.** This is a more expensive option, but it opens an entirely new pool of funding possibilities as well.

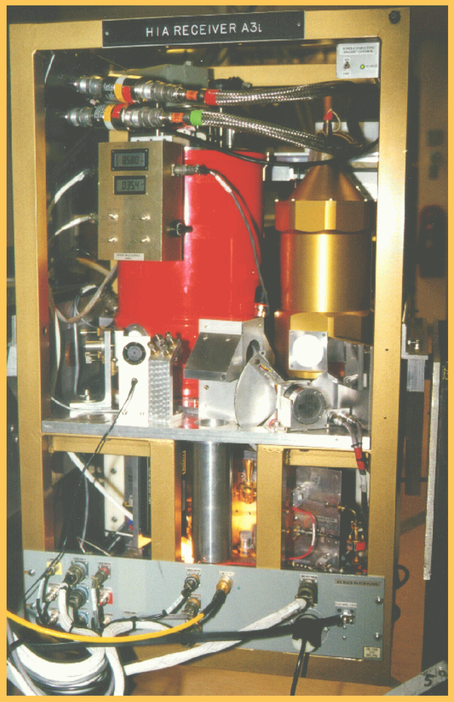

Figure 1: The current RxA3 at the JCMT. It is aging and it has been deemed that "*should RxA3 fail catastrophically sometime in the medium-term, it is probable that there will not be the effort, funding or scientific priority to ensure its resurrection*".

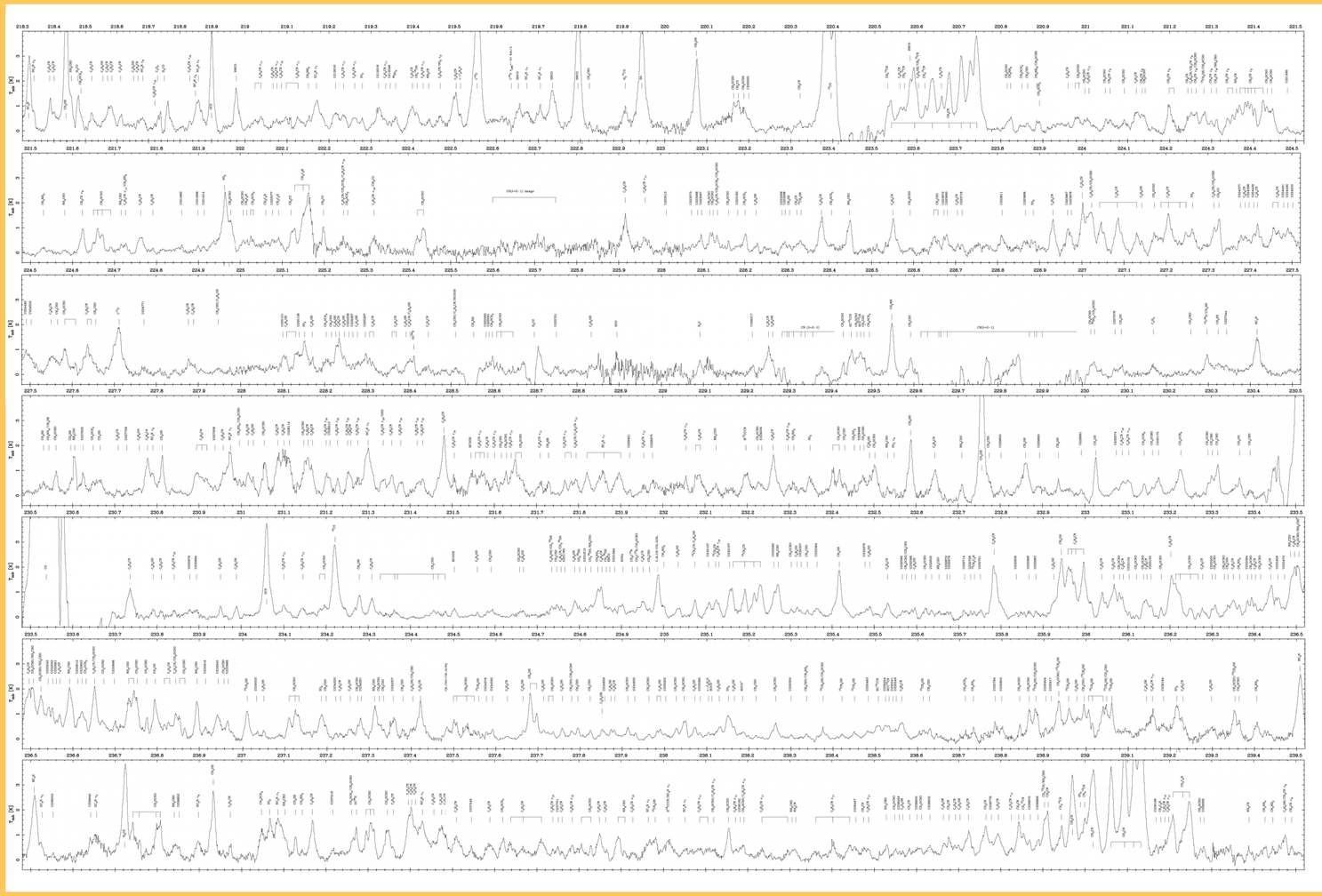

Figure 2: This figure shows a 30 GHz portion of the 210-276 GHz frequency range towards Sgr B2 (N) taken by Nummelin *et al.* 1998 (ApJS, 117, 427). The importance of having these lines accessible to the JCMT to the fields of astrophysics and astrochemistry grow goes without saying.

Did You Know...

1) In the last year, RxA3 was used ***substantially (i.e. more than a couple of hours) on 45% of all shifts*** where the JCMT was open for observing. In several instances, it was the only instrument that could be used for several days in a row due to bad weather.

Clearly, the loss of a 210-276 GHz instrument will greatly **decrease the observing efficiency** of the JCMT.

2) The costs to keep RxA3 alive for the immediate future may be **as low as a few thousand dollars** (plus the cost of labour).

3) The **futures of the Kitt Peak 12-m (formerly NRAO 12-m) and the CSO are questionable**. The KP 12-m is in financial trouble, and the CSO may merge with the Sub-Millimeter Array (SMA).

What Can You Do?

1) Sign the petition below: This will let the Advisory Panel know that the scientific community is interested in keeping this region of the spectrum open to the JCMT.

2) Send an email to *petitpas@astro.umd.edu* : Please include a list of recent (1999-present) publications or conference proceedings that include data from RxA3. This will help us build a science case for keeping this frequency window open that will be presented to the Board at the upcoming fall meeting.

3) Tell your colleagues: The more people who sign the petition, the better the chances of keeping this frequency range in use at the JCMT. You can also email your colleagues the URL shown at the bottom of this poster. There is an electronic version of the petition there.

For more information please visit http://www.astro.umd.edu/~petitpas/SaveRxA.html