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### **Deliverable D19.3**

**Providing access of 143,8 hours to the APEX infrastructure**

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Deliverable Leading Partner: CHALMERS TEKNISKA HOEGSKOLA AB (OSO),  
Sweden

## 1 Document information

Document name: Providing access of 143.8 hours to the TNA -APEX infrastructure in the period 01.04.2014 – 31.12.2014

Type Other

WP 19

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### 1.1 Dissemination Level

Dissemination Level		
<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (including the Commission Services)	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission Services)	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission Services)	

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## 2 Description of the TNA-APEX deliverable

### 2.1 Information about the TNA – APEX

Onsala Space Observatory at Chalmers University of Technology (OSO) is the Swedish National Facility for Radio Astronomy. It operates two telescopes at Onsala, a 25 m cm-wave telescope and a 20 m mm-wave telescope, and it is one of three partners in the Atacama Pathfinder Experiment (APEX) project, a 12 m sub-mm telescope in Chile.

APEX is a 12-m sub-mm radio telescope located at 5100 m altitude on Llano Chajnantor, Chile (see <http://www.apex-telescope.org/>). The telescope is of excellent quality (15  $\mu\text{m}$  rms surface accuracy; Güsten et al. A&A 454, L13) and the site is also excellent as proven by the successful operation at 1.5 THz (Wiedner et al. A&A 454, L33). Observations are carried out from late March to late December (excluding the Bolivian winter). OSO is one of three partners that operate APEX, and its share of the total costs is 23%. This is also the Swedish share of the observing time, but, as the host country, Chile gets 10% of the Swedish time. Consequently, OSO distributes 21% of the observing time to the community. Transnational Access to APEX under RadioNet3 concerns only the Swedish share of the observing time, and OSO is therefore the only lead beneficiary in this Work Package.

APEX is equipped with a suite of bolometer cameras and single-pixel heterodyne receivers as common-user instruments, covering the range 1.3 mm to 0.2 mm. During the period reported here, the LABOCA 295-channel 870  $\mu\text{m}$  bolometer array, the SABOCA 37-channel 350  $\mu\text{m}$  bolometer array, and the 4-channel heterodyne receiver (230, 350, and 500 GHz, and 1.3 THz; the 1.3 THz channel was unavailable) were installed as common-user instruments. Additional instruments, so called PI-instruments, were available through collaborations with the groups responsible for them. The partner instrument ArTeMiS (a 2304 pixel 350  $\mu\text{m}$  bolometer array) was also available to users of Swedish time on APEX.

Access to APEX is through a proposal and peer review process. The observations at APEX are complicated by the high altitude of the telescope, 5100 m, which prevents the use of a regular visiting-astronomers scheme. APEX observations are therefore made in semi-service mode through a scheme where the APEX staff and (selected) visiting astronomers carry out the observations.

Observing proposals for Swedish time on APEX are accepted twice per year, typically April 15 and October 15, and are evaluated in terms of scientific merit by a Time Allocation Committee (TAC) with five members. The actual observing time scheduled on the telescope is determined by the APEX staff based on the recommendations by the TAC (the scheduled time can differ slightly from the recommended time, due to, e.g., weather conditions and the availability of the requested local sidereal time interval).

## 2.2 Information about the provided access in the period (01.04.2014-31.12.2014)

Date of access	Project acronym	Name (institute) of the TNA user group leader	Number of the TNA users	Provided access [hours]
Apr-Aug 2014	093.F-9303(A)	C. Brinch (Niels Bohr Institute, DK)	4	17.1
Apr-Aug 2014	093.F-9309(A)	T. Davis (European Southern Observatory, DE)	4	49.5
Apr-Aug 2014	093.F-9313(A)	B. Gullberg (European Southern Observatory, DE)	6	22.9
Apr-Aug 2014	093.F-9314(A)	S. Wampfler (University of Copenhagen, DK)	4	13.1
Apr-Aug 2014	093.F-9317(A)	N. Peretto (Cardiff University, UK)	7	18.6
Aug-Dec 2014	094.F-9302(A)	A. Ginsburg (European Southern Observatory, DE)	5	24.8
Aug-Dec 2014	094.F-9305(A,B)	A. Sicilia-Aguilar (University of St Andrews, UK)	5	15.2
<b>TOTAL</b>			<b>35</b>	<b>161.2</b>

The detailed information about the committee providing access, projects and selection will be given in the TNA database of the 3<sup>rd</sup> reporting period.

## 2.3 Information about the financial EC contribution to the travel

There was no financial EC contribution to the travel for observations with the APEX telescope. The observations are normally made in service mode by the APEX staff. In some cases observers visit APEX, but these trips are not financed by the RadioNet3 TNA travel budget.

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