MEMO

Date	15/03/2016	**Ref**	EUCL-EST-ME-8-007
From	R. Laureijs on behalf of the EST	**Visa**	
To	whom it concerns		
Copy			

Subject: External data for Euclid

On behalf of the Euclid Science Team (EST), this memo expresses the support to the Euclid Consortium, led by prof. Y. Mellier, who is also EST member, to seek for collaborations ensuring external data for Euclid.

Euclid is an ESA space telescope designed to measure accurately the expansion history of the Universe and the growth of cosmic structures. It will carry out an optical and near-infrared imaging sky survey, as well as a near-infrared spectroscopic survey. Euclid will cover 15,000 deg2, roughly one third of the entire sky. The unprecedented measurements will address fundamental questions about dark energy, gravity, dark matter, and the initial parameters in the Universe.

To determine the expansion history of the Universe, Euclid uses weak gravitational lensing as one of its cosmological probes. Weak lensing requires the measurement of the redshifts and shapes of galaxies. The Euclid instrumentation has been optimized to measure the shapes of galaxies. For the redshifts, the required level of accuracy can only be achieved if the photometric measurements obtained by Euclid are complemented by ground based photometric data.

This is in line with Euclid's mission concept: Euclid shall provide the spatial resolution and near infrared data which can only be achieved from space, data which can be collected from ground are not supplied by the space segment. This aspect of the mission concept is supported by ESA and endorsed by the ESA advisory structure representing all ESA member states. In the science management plan of Euclid, the Euclid Consortium (a collaboration of more than 1000 scientists) has been tasked to acquire the external data.

The Euclid Science Team (EST) is an advisory body to ESA regarding the scientific objectives and implementation of the mission. The EST closely monitors the progress of the mission including the acquisition of suitable ground based data, which is an essential

science requirement. Whilst the Southern sky is well covered by ongoing and future approved surveys, the situation is less certain for the Northern sky. The EST notes that ground based data can only be obtained with suitable facilities able to reach the detection limits required by Euclid. The massive scale of the Euclid survey makes its ground based complement difficult to achieve without dedicated instrumentation, time allocation, and support.

The EST acknowledges the challenge in obtaining the required external data for the Northern hemisphere in accordance with the timescales of the Euclid mission, which will commence its nominal 6 year survey in 2021. The EST encourages any support to or collaboration with the Euclid Consortium, which enables the collection of ground based photometry data for the Northern hemisphere possibly before the start of the survey. This not only secures the core science of Euclid but also enhances the unique scientific legacy of the Euclid catalogues.

Noordwijk, 15 March 2016

R. Laureijs,

Euclid Project Scientist
On behalf of the EST

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