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KIEPENHEUER-INSTITUT
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**GREGOR:
USAGE OF THE FLIR IR
THERMAL CAMERA**

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	Name	Signature	Date
Prepared by	J. Palacios - KIS		01.06.2018
Reviewed by	L. Kleint – KIS		5.6.2018
Approved by			
Released by			

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1 Scope

This short manual is intended for explaining the use of the infrared camera FLIR ThermaCam E45 and to estimate temperatures.

2 Reference and applicable documents

The reference documents are on the FLIR webpage <http://flir.custhelp.com/app> .

3 Where to find the camera

The FLIR ThermaCam E45 is located in the electrical lab (E-labor, 112) at the VTT, in a black plastic box above the closets (Fig. 1, left). When you finish using it, please bring it back to that place (Fig. 1, right).



Figure 1. Left: camera box. Right: the red arrow indicates the storage spot.

4 How to use the camera

There is a charger and a spare battery, however you can charge the camera directly through its power supply charger.

For usage instructions and calibration of the images, you can refer to http://flir.custhelp.com/app/account/fl_download_manuals (English) or the booklet in the camera box (in German).

The typical values we used are emissivity $E = 0.98$; T (reflected apparent temperature) = 20°C , for the purpose of dome platform temperature estimations. The reflected apparent temperature was checked by the “reflector method” (see camera documentation) and it is about $20\text{-}22^{\circ}\text{C}$ (ambient temperature sensed by GREGOR T_{amb} sensor and IAC webpage = 12°C). The measurements are in the GREGOR maintenance report of May 2018, which can be accessed at blog.tt.iac.es. The setup for the reflected apparent temperature measurement is shown in Fig. 2.

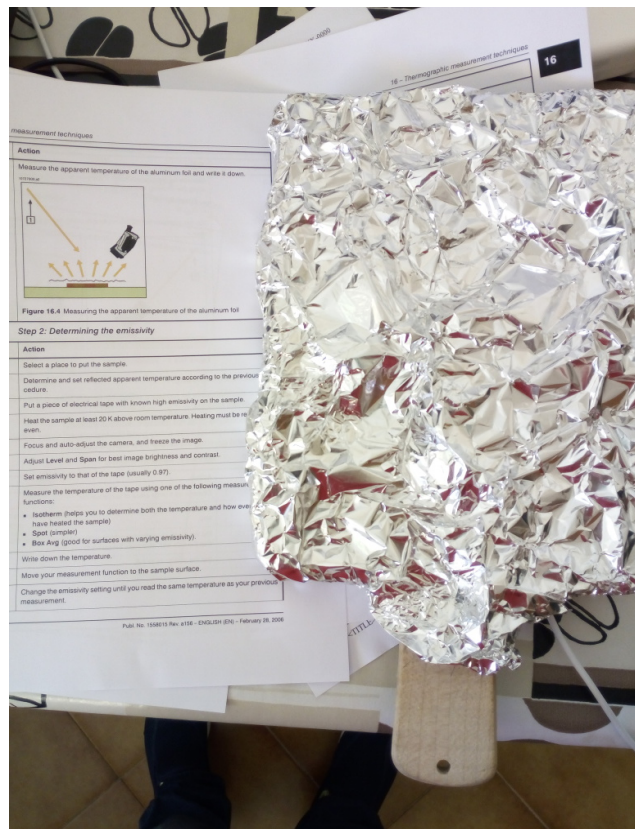


Figure 2. Setup for the estimation of the reflected apparent temperature

5 Software to transfer images

The image transfer has to be performed via USB and a Windows computer. The appropriate drivers are installed on the Windows XP computer called pco4000-3 in the fifth floor at GREGOR. You will need the appropriate USB cable, which is located in the camera box.

Just switch on the computer (it does not require a password). Then first plug the USB in and only then switch on the camera. It is recommended to plug in the USB in a back port, in the motherboard. A message will appear saying “Configuring ThermoCamIR08489” -> then “IRCam08489 connected to Z: ”. Then look for the Volume Z:) and the images will appear there directly, if the drivers are working properly. You only have to transfer the images somewhere else. When you finish, first switch off the camera and then unplug the USB.

If the drivers are not working, you can reinstall them, but it takes some time. Do not try to install them on a Windows computer that does not have administrator permissions (e.g. Vietnam at VTT), otherwise the drivers will not be installed.

For further information on how to transfer images and install the drivers, please follow the following links http://flir.custhelp.com/app/answers/detail/a_id/822/related/1 , also

http://flir.custhelp.com/app/answers/detail/a_id/987/related/1 and its very useful software installation manual (instructions for Windows XP, Windows 7 and 8).

http://flir.custhelp.com/ci/fattach/get/15814/0/filename/T559904-en-US_AB-15234-15234.pdf

6 Example images

This section shows some example images taken in June 2018. Note that focusing of the camera needs to be done manually.

