IMAGE ANALYSIS

The Lab session on image analysis at the 18th IWGP intends to provide participants with an overview of the major techniques used to analyzed seed shape. These involve fitting some type of curve to the seed's outline, with the resulting coefficients then beingused as variables for statistical analysis.

There are several approaches that can be used to analyse seed shape. Since the early 2000s the elliptical Fourier analysis (EFA) method has been extensively used in archaeobotany to discriminate between wild, feral and domesticated forms of Mediterranean plants (Terral *et al.* 2009) and discriminate between different varieties of the same species (Terral *et al.* 2012).

An alternative method to Fourier analysis is Procrustes analysis, which is based on landmark configurations, was also used to study the spread of olive domestication in the Mediterranean basin in antiquity (Terral *et al.* 2004).

At the 18thIWGP scholars will have an hand-to-hand experience of fitting a polynomial curve to plant remains using the most common programs for shape analyses.

The Laboratory session will be lead by Laurent Bouby

Reference

Terral, Alonso, Buxò, Chatti, Fabre, Fiorentino, Marinval, Perez Jorda, Pradat, Rovira, Alibert 2004. Historical biogeography of olive domestication (*Olea europaea* L.) as revealed by geometrical morphometry applied to biological and archaeological material. Journal of Biogeography, 31, 63–77.

Terral, Newton, Ivorra, Gros-Balthazard, de Morais, Picq, Tengberg, Pintaud 2012. Insights into the historical biogeography of the date palm (*Phoenix dactylifera* L.) using geometric morphometry of modern and ancient seeds. Journal of Biogeography, 39(5), 929-941.

Terral, Tabard, Bouby, Ivorra, Pastor, Figueiral, Picq, Chevance, Jung, Fabre, Tardy, Compan, Bacilieri, Lacombe, This 2009. Evolution and history of grapevine (*Vitis vinifera*) under domestication: new morphometric perspectives to understand seed domestication syndrome and reveal origins of ancient European cultivars. Annals of Botany, 105(3), 443-455.