

Multiscale Tomography

Imaging and Modelling Ancient Materials

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Anthropological and historical issues



Coiling technology with thin coils



Coiling technology with elongated coils (also described as slab construction)



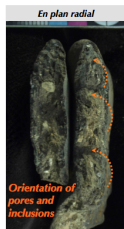
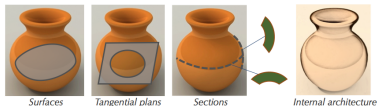
Spiraled patchwork technology (SPT)

Macro-traces analysis

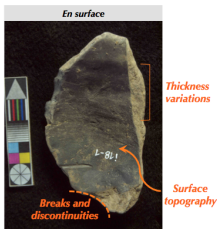
Different manufacturing techniques lead to different orientation of pores/inclusions



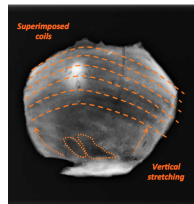
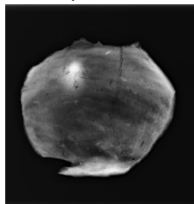
Possible indicators



Gomart, 2014



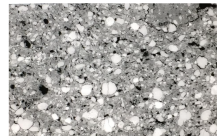
Inspection of breaks and discontinuities



Gomart, 2014

Thin section analysis

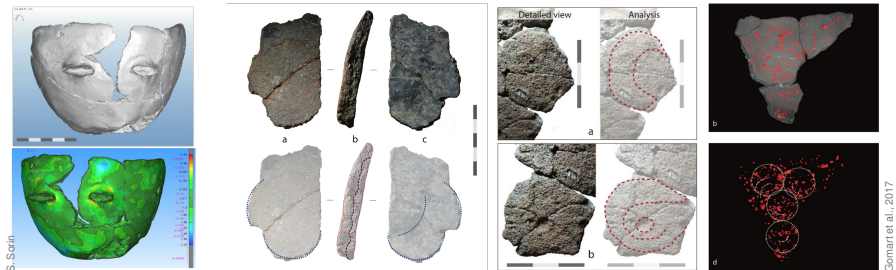
(SEM-BSE)



Gabrièle et al.

Macro-traces analysis: Pendimoun rock shelter sherds

Irregular surfaces, **curvilinear** fractures, **circular** orientation of pores/inclusions

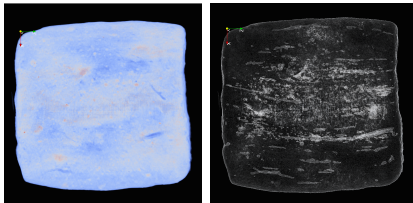


Uniformity of sherd **characteristics** at the Pendimoun archaeological site
(no sherd built using the coiling technique)

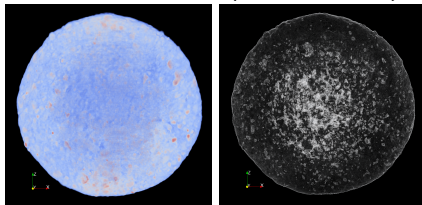
Spiralled patchwork technology (SPT) hypothesis

Automatic pores filtering

experimental sherd (coil technique)



experimental sherd (SPT technique)



(SkyScan data)

Data processing

- segmentation processes
- shape recognition
- image descriptors
- statistics
- Hough Transform
- multiresolution processing
- ...

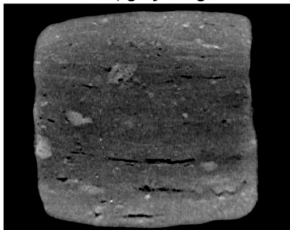
... both on 2D and 3D data

Softwares:

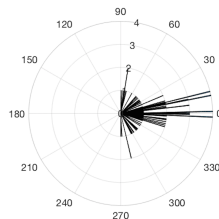
MATLAB, Paraview, Fiji, ...

Shape recognition and statistics

slice, gray image



binary image, segmented



(SkyScan data)

Multiresolution analysis & Hough Transform

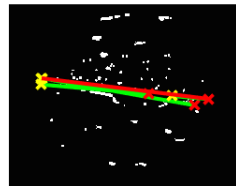
binarized slice



binarized pores



multiresolution + HT



A blue square containing a white question mark.A blue square containing a white question mark.A blue square containing a white question mark.

(Mathematical)
characterization
of ancient
potteries

A blue square containing a white question mark.A blue square containing a white question mark.A blue square containing a white question mark.A large blue square containing a white question mark.