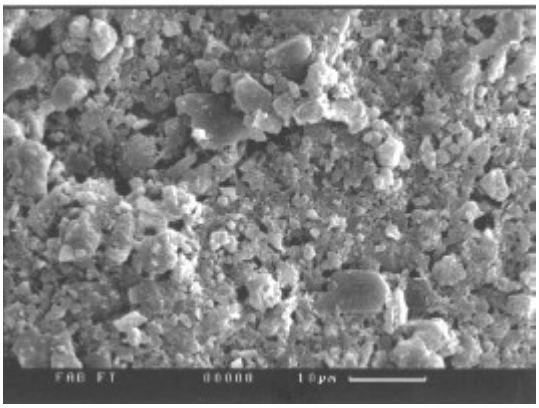
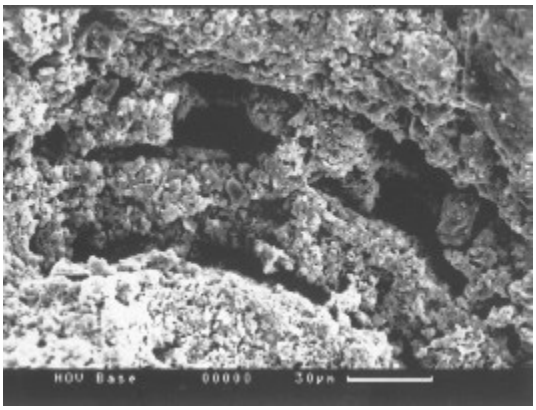
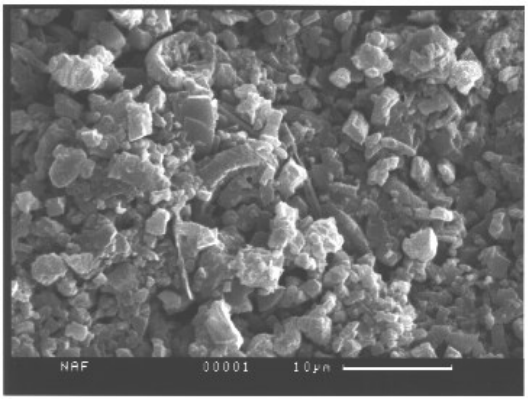


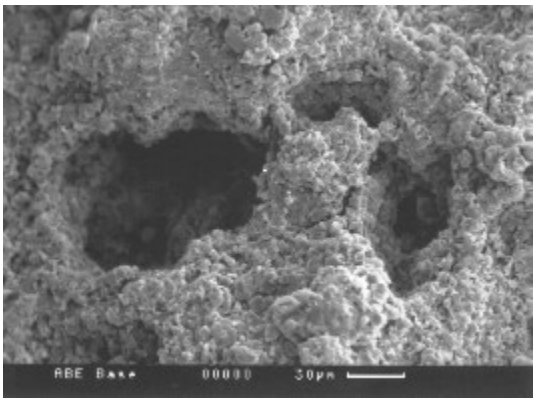
(a) Sparry limestone (SpaL)
High magnification micrograph showing densely interlocking grains with increased porosity in association with fossils. There is also some alignment of pores.



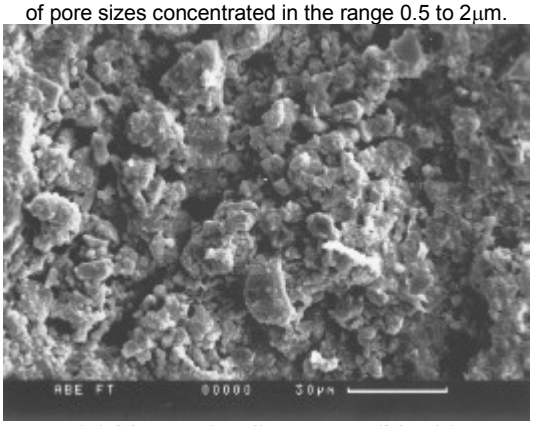
(b) Oolitic limestone (OolL)
Concentric ooid layers showing the contrast between inter and intra-layer porosity.



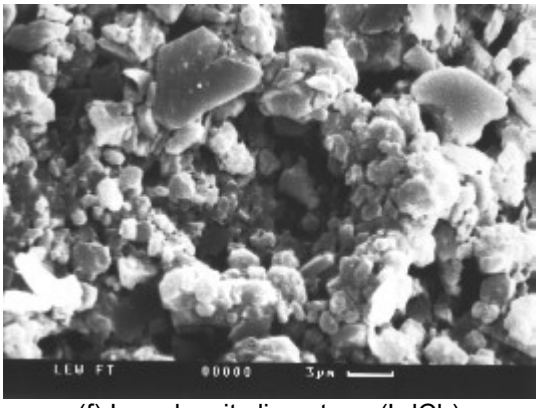
(c) High density chalk (HdCh)
Coccoliths and fine matrix. With the exception of macro-pores associated with fossils, there is a narrow distribution of pore sizes concentrated in the range 0.5 to 2μm.



(d) Magnesian limestone (MagL)
Typical sub-rounded macropores. These usually have very narrow connections to other pores, often with narrow, irregular microcracks around their circumference.



(e) Magnesian limestone (MagL)
A similar magnification view of MagL to (d) showing an area with much finer and more angular pores, with macropores being absent.



(f) Low density limestone (LdCh)
Round, 10μm pores formed by spar-lines foraminifera tests. The whole rock structure is very loose and porous.

Figure 1 Scanning electron micrographs of the five limestones

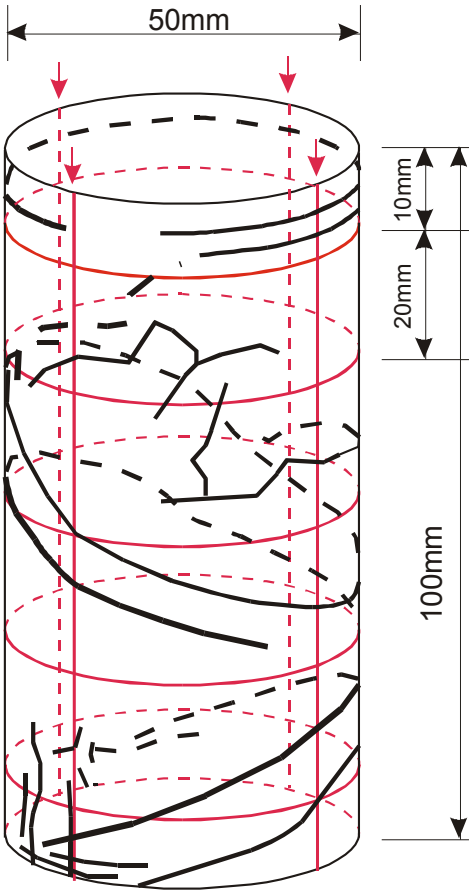


Figure 2 Schematic representation of fracture density measuring grid superimposed on a standard cylindrical specimen.

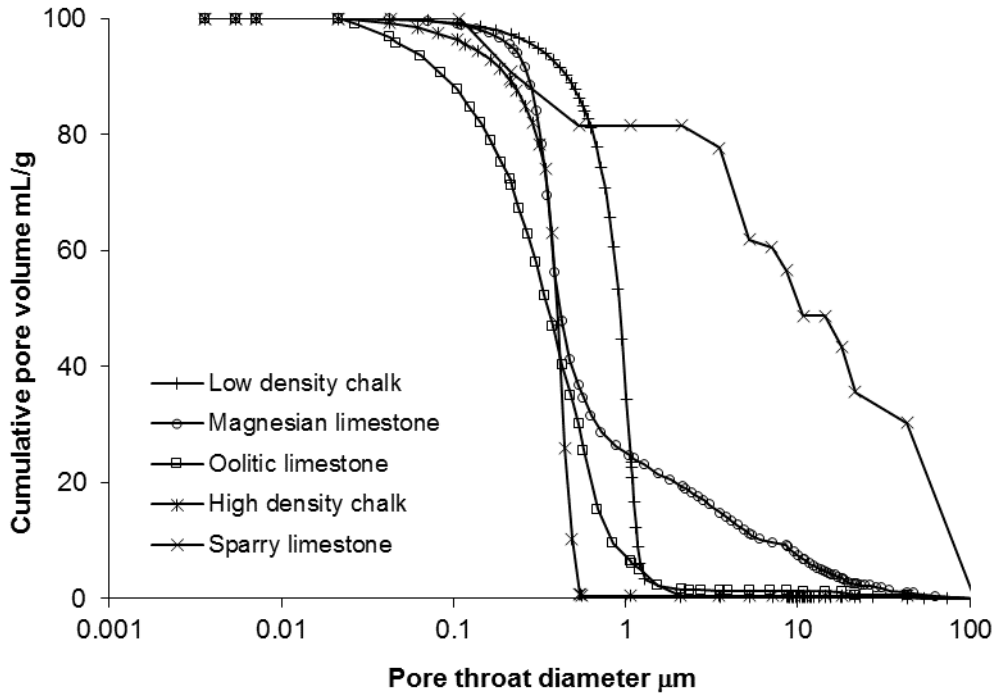


Figure 3 Pre-test pore size distributions for the limestones tested

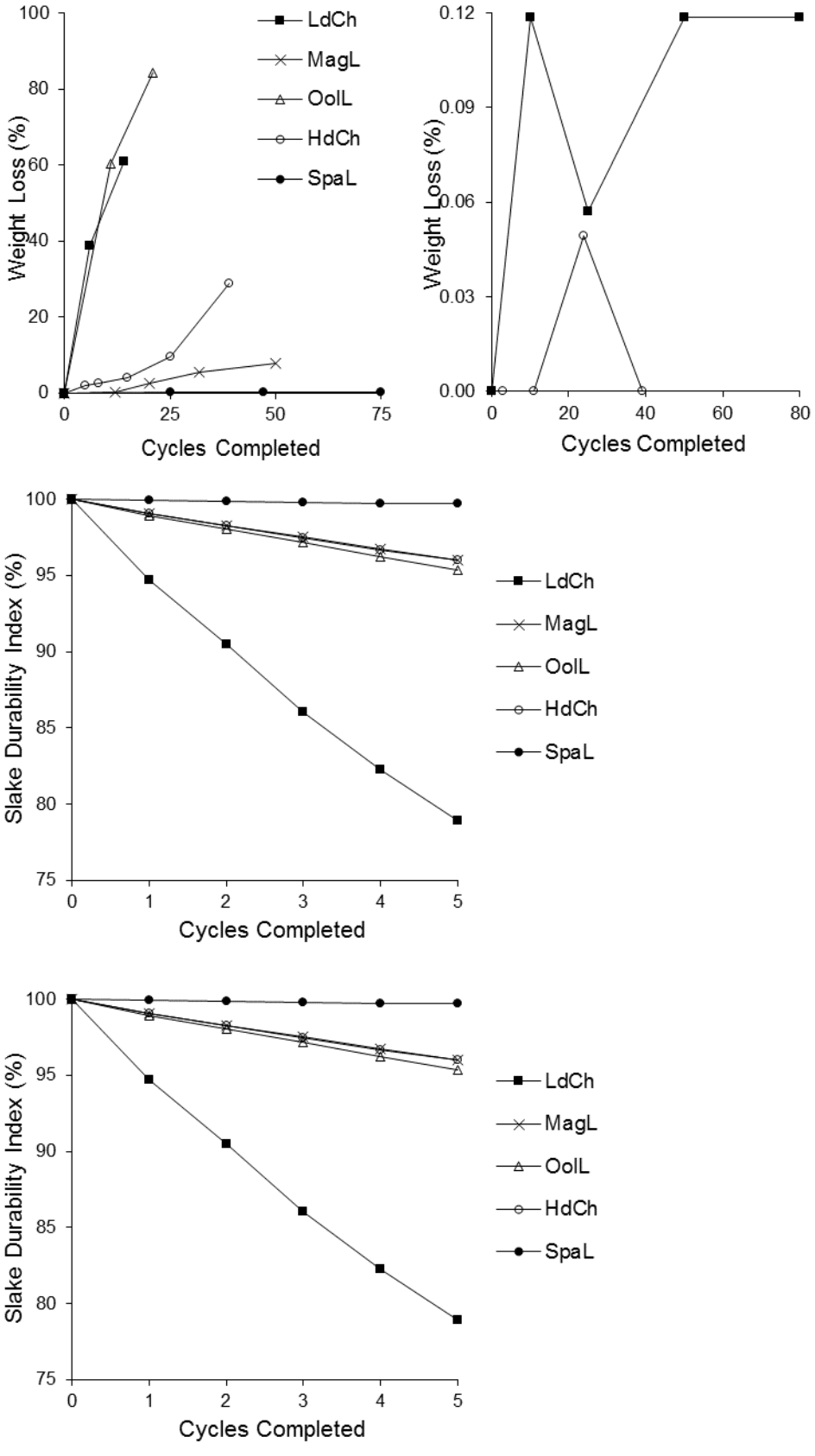


Figure 4a–d Weight loss due to experimental weathering of five limestones

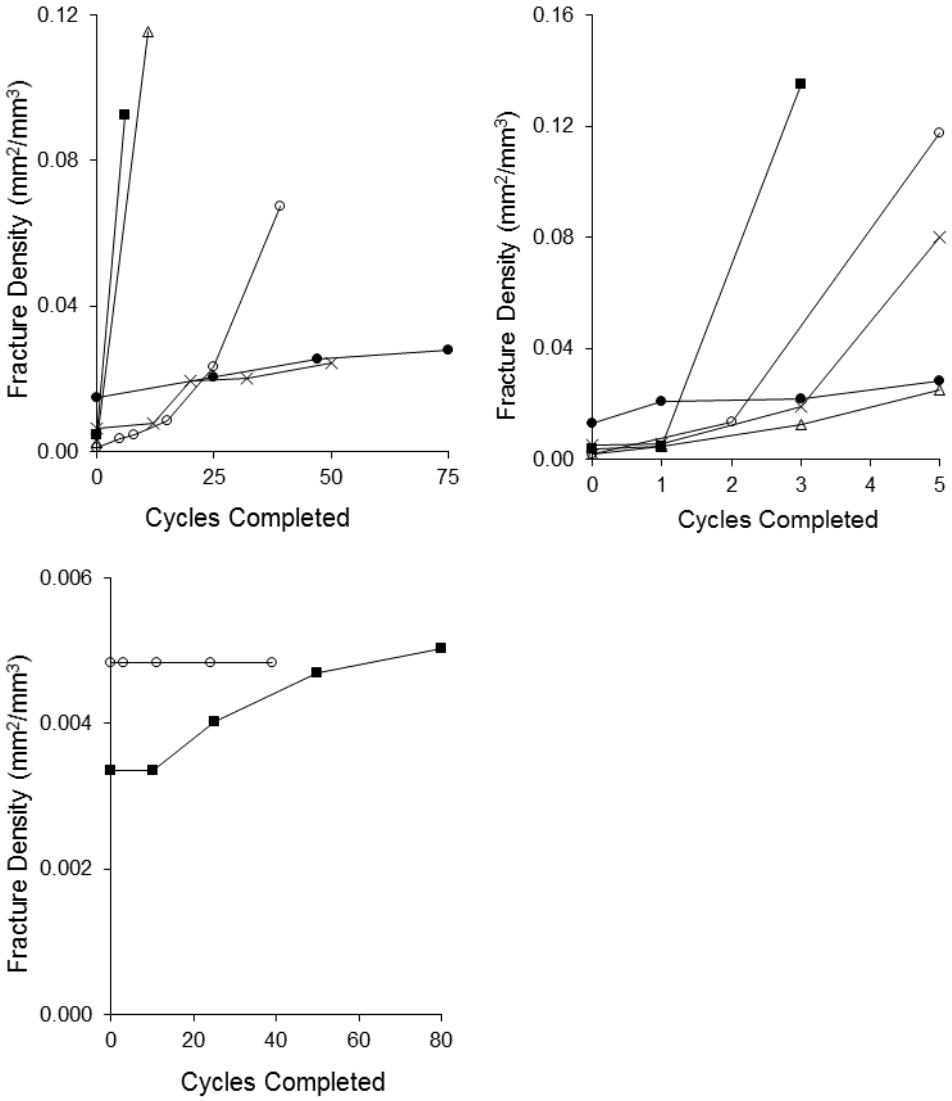


Figure 5a–c Fracture density due to experimental weathering of five limestones

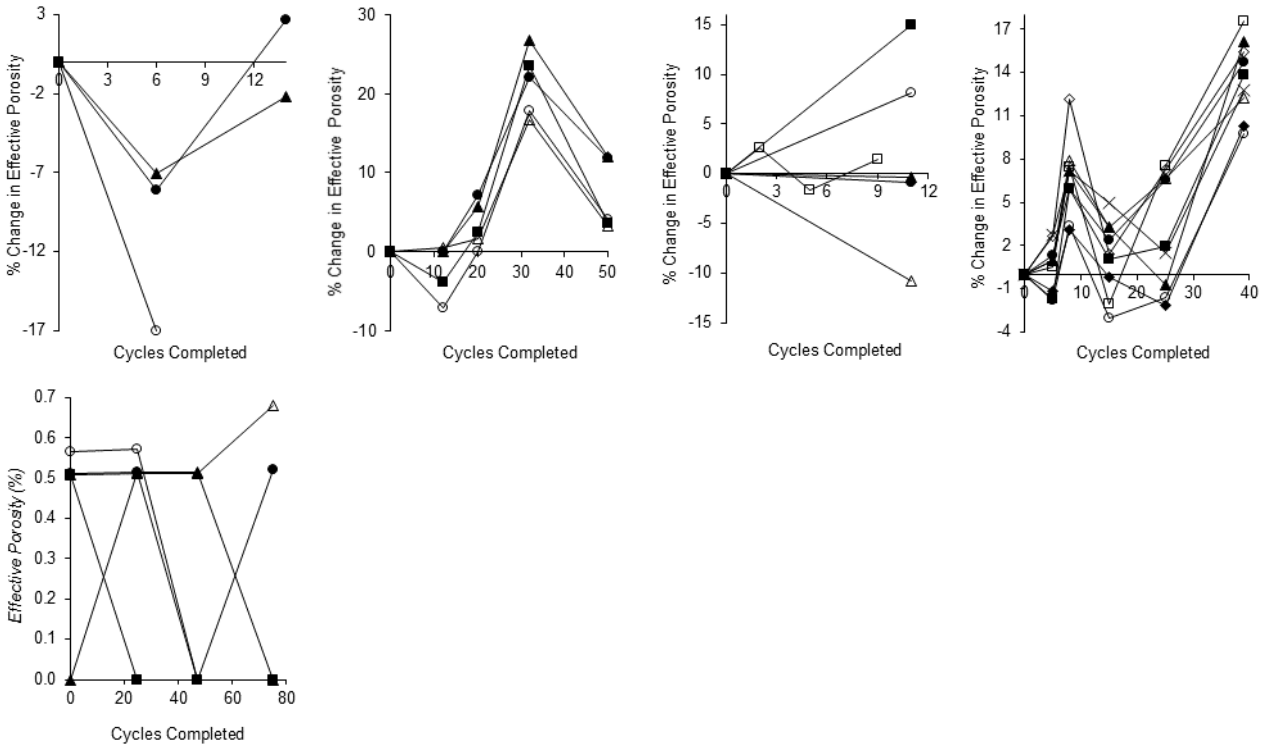
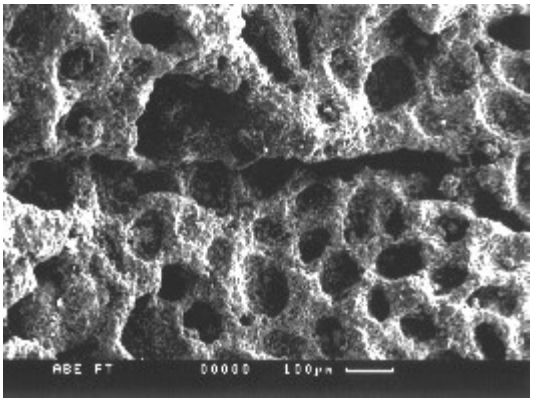
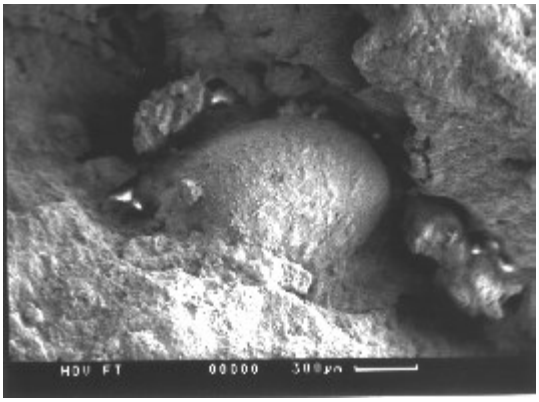


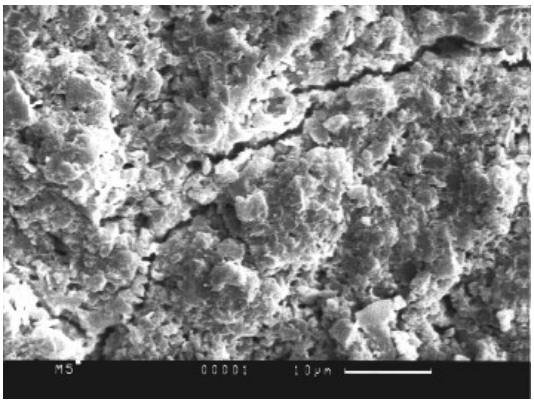
Figure 6 Percentage change in effective porosity due to freeze-thaw
(*Absolute effective porosity is plotted for SpaL because of the low values involved)



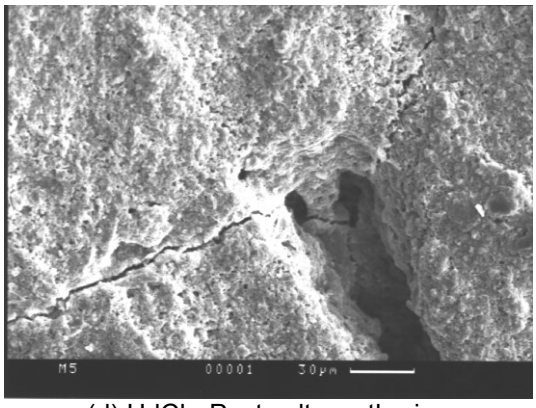
(a) MagL: Post freeze-thaw
Development of this macro fracture appears to have been assisted by pore coalescence and alignment.



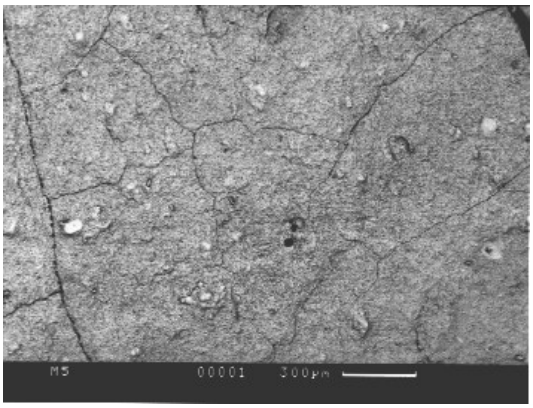
(b) OolL: Post salt weathering
Low magnification micrograph of an ooid and surrounding debris covered with a fine coating of salt deposits.



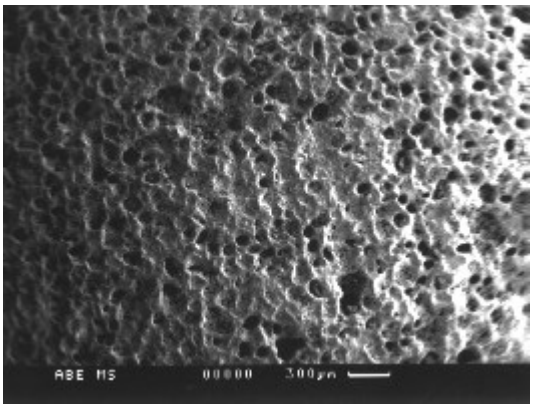
(c) HdCh: Post salt weathering
Narrow microcracks with an aperture of 1µm developed in *en echelon* form.



(d) HdCh: Post salt weathering
Medium magnification view showing an irregular crack intersecting the blunt end of a much larger fracture. The latter appears to have propagated from two rounded pores.



(e) HdCh: Post salt weathering
Low magnification view of the surface of HdCh, dissected by a dense network of intersecting, irregular, angular and incipient fractures.



(f) MagL: Post salt weathering
Low magnification view showing coarse pores. The relief of many of these pores is much more subdued than was typical prior to testing (compare with Figure 1d).

Figure 7 Post-test scanning electron micrographs of the five limestones

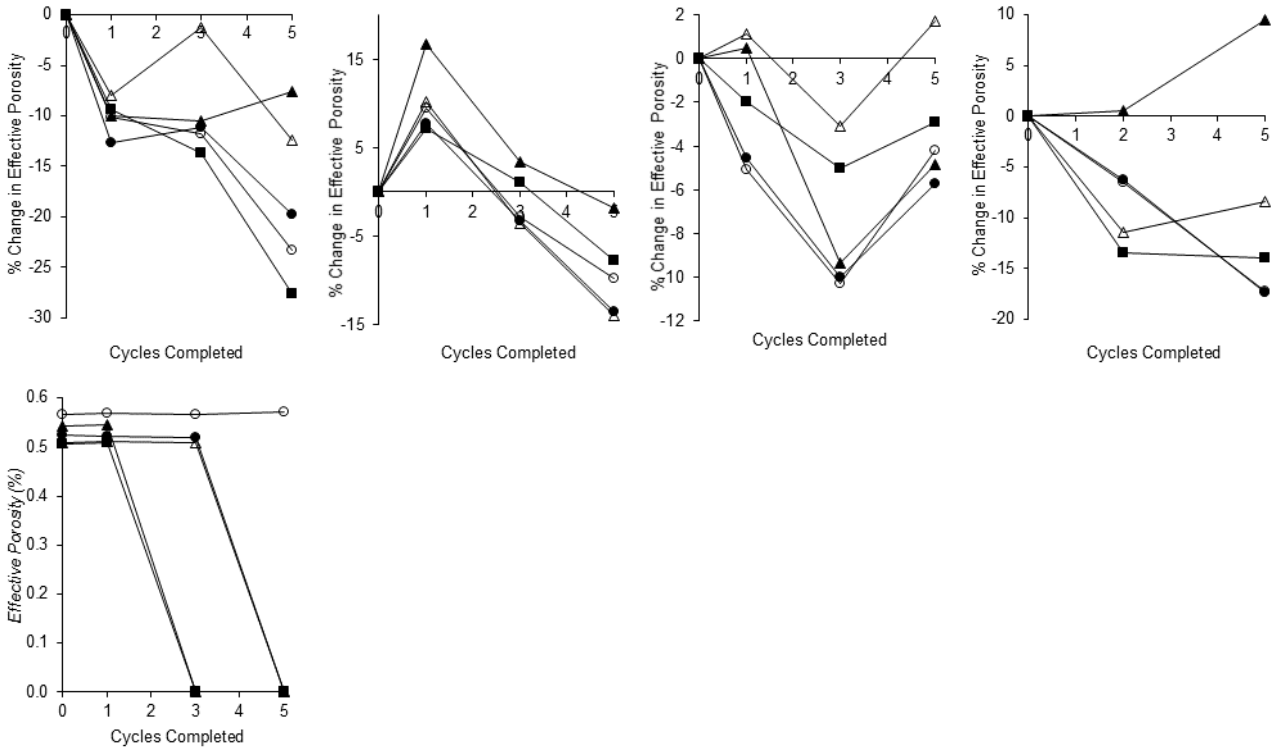


Figure 8 Percentage change in effective porosity due to salt weathering
(*Absolute effective porosity is plotted for SpaL because of the low values involved)

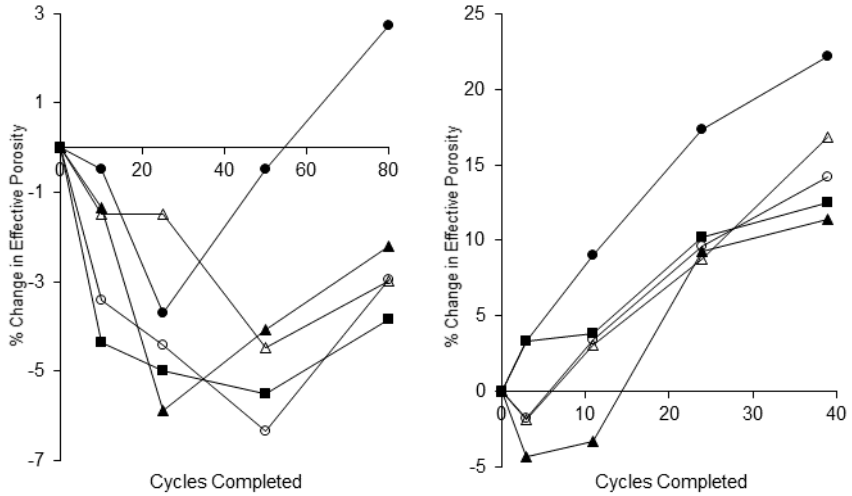


Figure 9 Percentage change in effective porosity due to wetting and drying

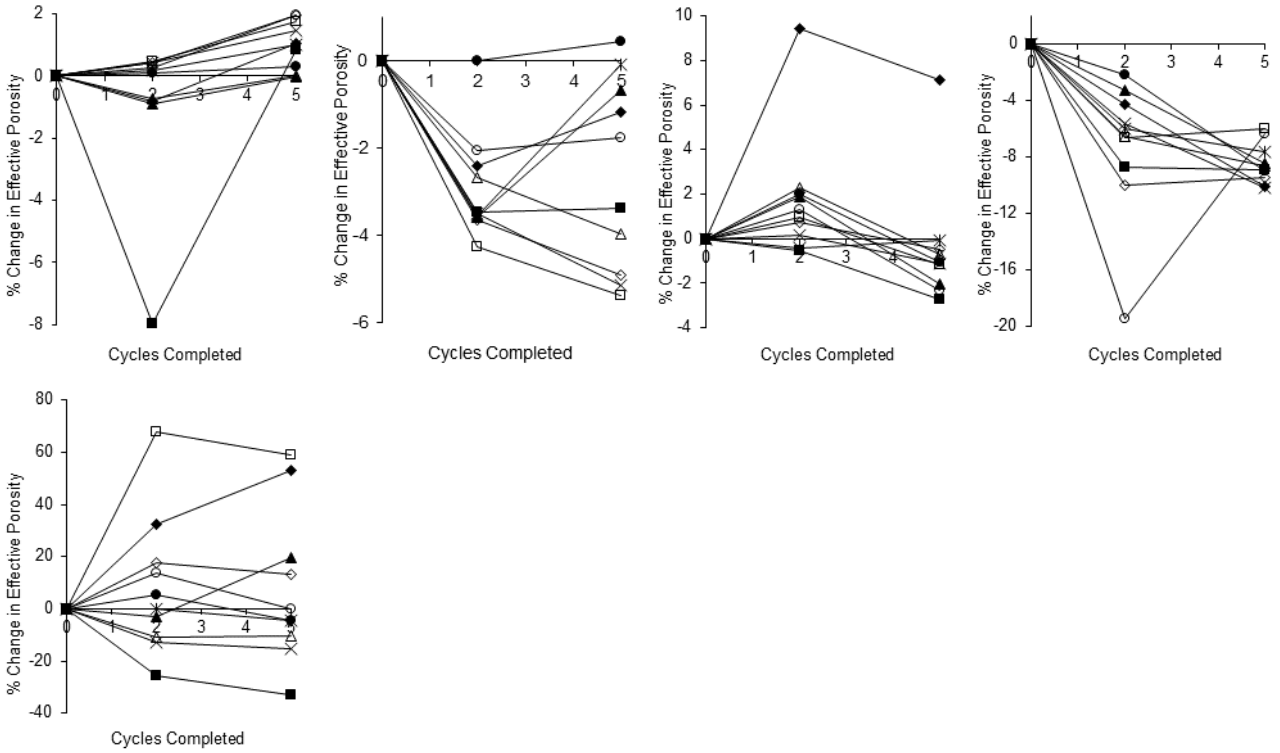


Figure 10 Percentage change in effective porosity due to slake durability