

TES Materials Characterisation

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ASTRI

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Thermal Energy Storage (TES) is an area of Solar Thermal Technology which is **heavily reliant upon materials**; both as thermal storage media and as containment. **QUT** has extensive expertise and capability in the area of materials characterisation of metals and Molten Salt thermal storage media.

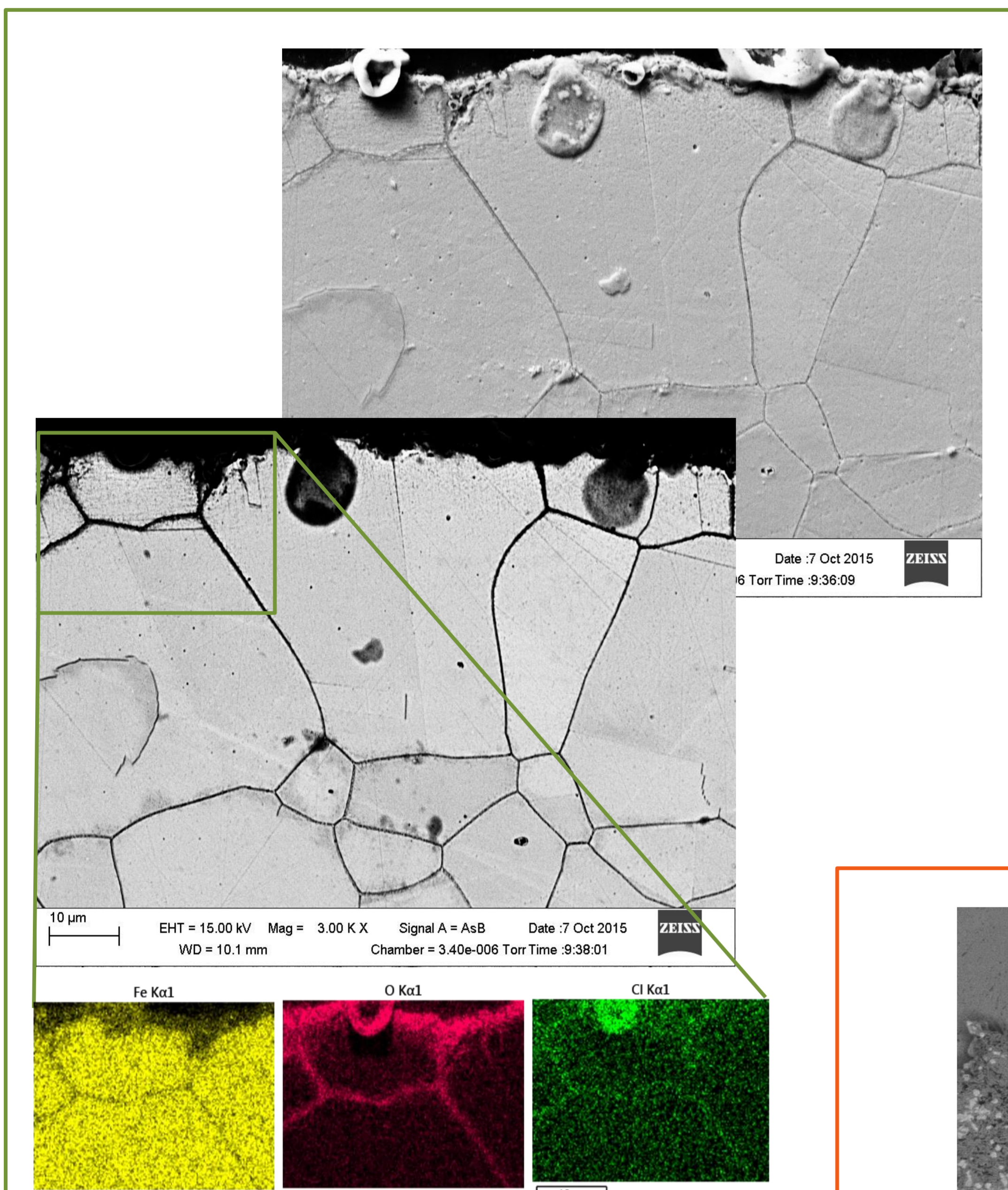


FIGURE 2. Secondary Electron ,Backscatter and EDS images of 316 Grade Stainless Steel in NaCl/Na₂CO₃ PCM thermally cycled exhibiting iron depletion and oxygen and chlorine ingress along grain boundaries.

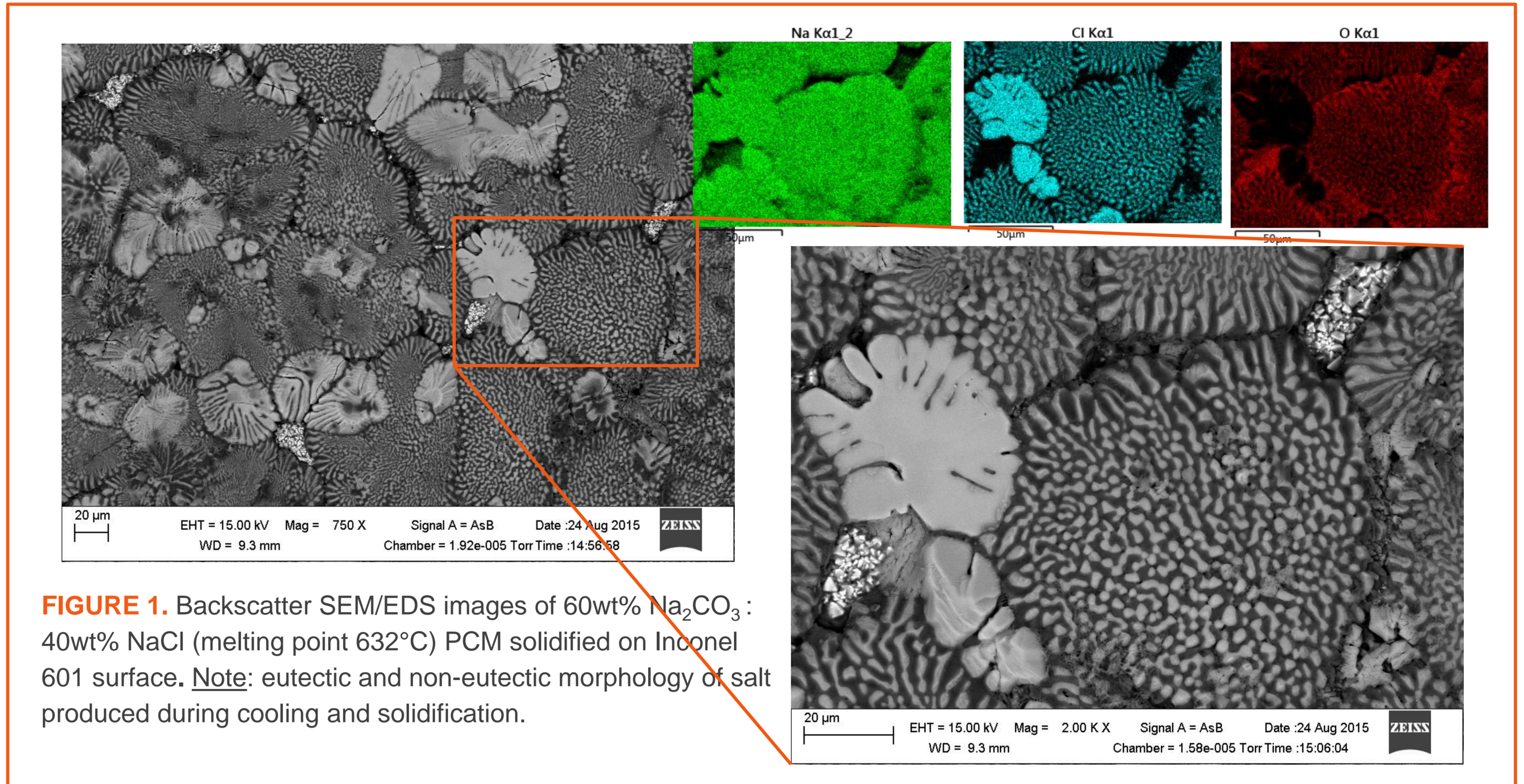


FIGURE 1. Backscatter SEM/EDS images of 60wt% Na₂CO₃ : 40wt% NaCl (melting point 632°C) PCM solidified on Inconel 601 surface. **Note:** eutectic and non-eutectic morphology of salt produced during cooling and solidification.

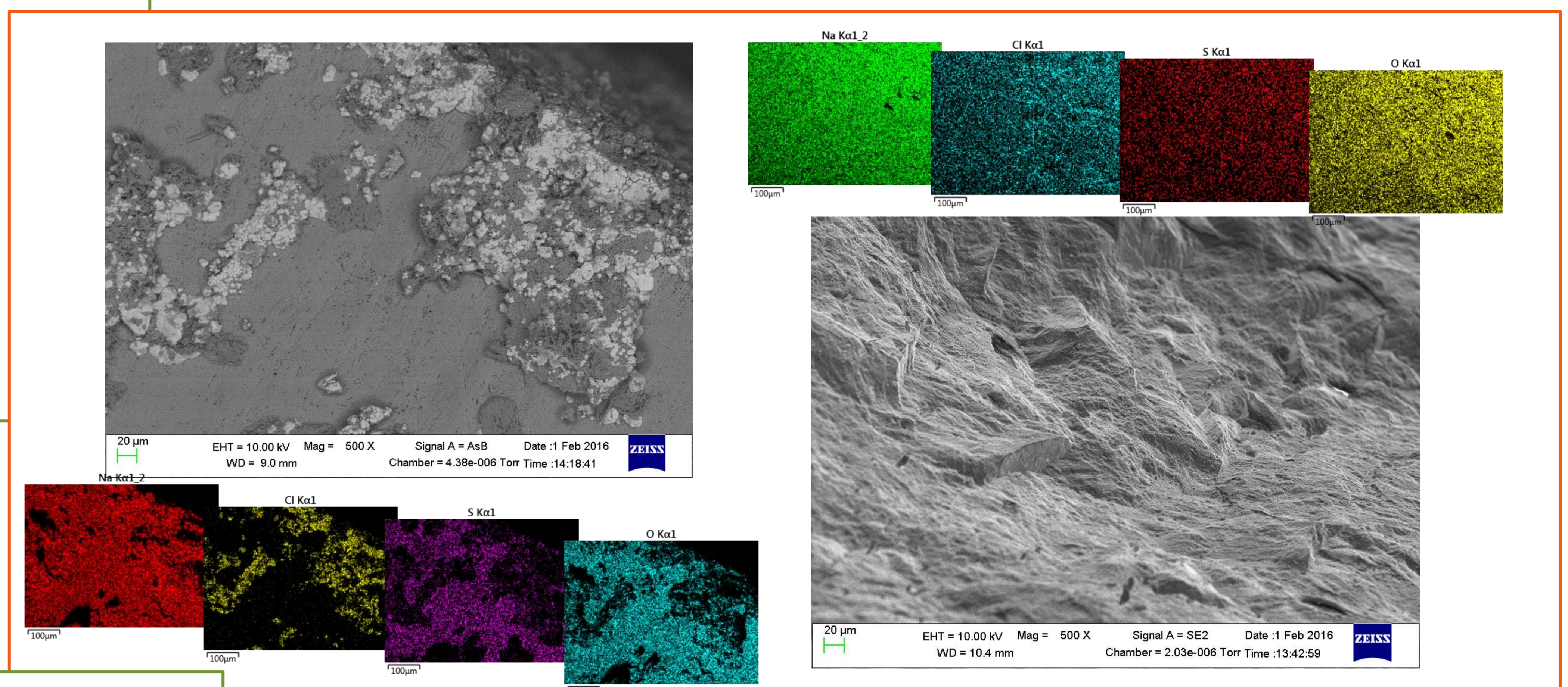


FIGURE 3. SEM/EDS Images of non-eutectic and eutectic NaCl/Na₂SO₄ PCM

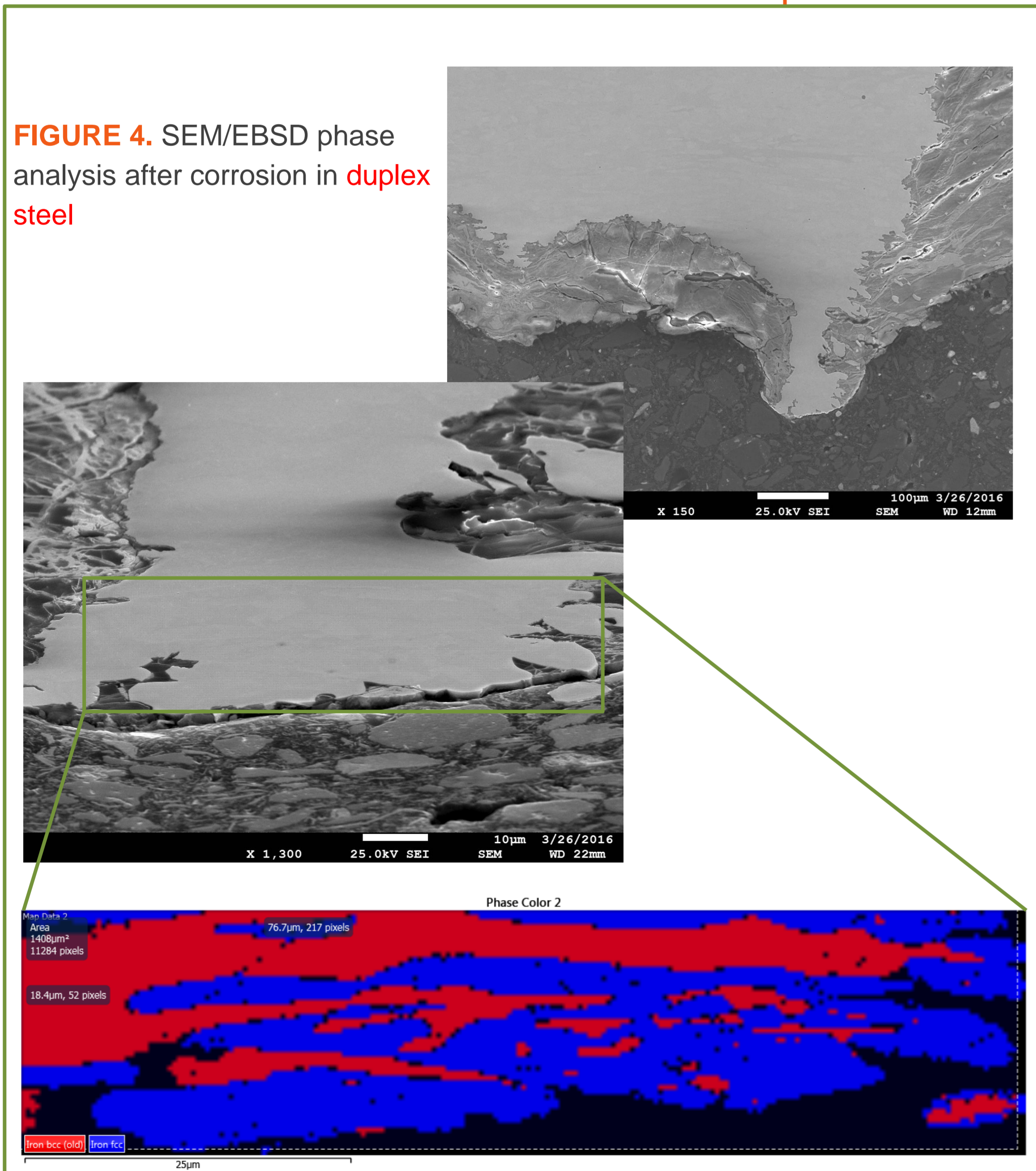


FIGURE 4. SEM/EBSD phase analysis after corrosion in duplex steel

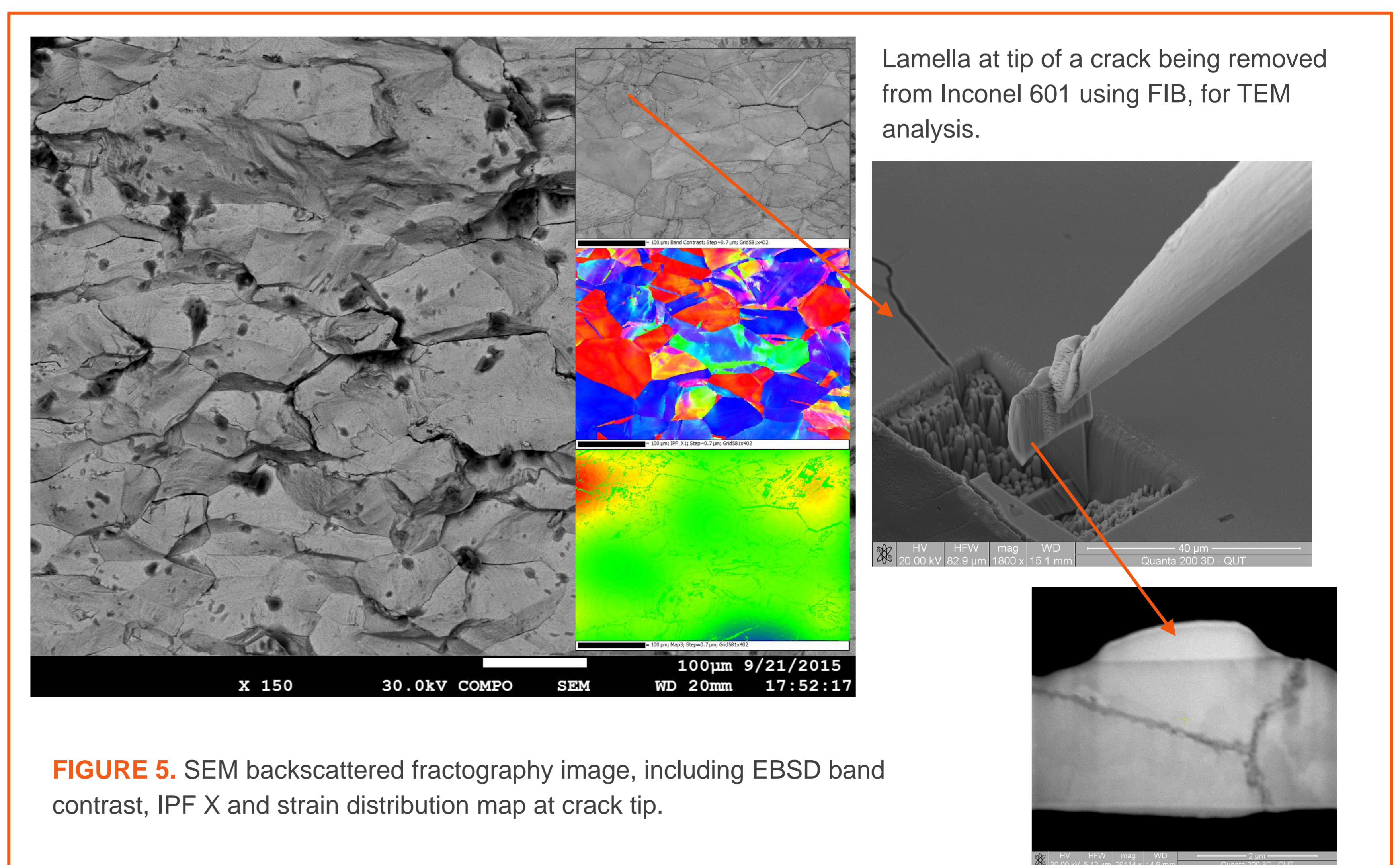


FIGURE 5. SEM backscattered fractography image, including EBSD band contrast, IPF X and strain distribution map at crack tip.

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