* Which ones are "healthy" teeth and which ones are "cracked"?

The ones named "orig" are uncracked and the others are cracked.

* Does each file come from 1 independent sample (a tooth)? Or are "f\_0","f\_1",... derived from "orig"?

Each file contains one sample but they aren't exactly independent. The "orig" files are the original scans and the derived ones have synthetic fractures placed on them.

* What is the difference between smooth and extract?

These are just reflecting the filenames of the underlying cases: "orig\_smooth" are the smoothed original images that were processed and the "f\_x\_extract" are the synthetic examples.

* Are 01, 009, FB, subject ID? (are these real teeth sample from people then?)

Yes

* If you don't mind, could you please send me the paper (or the part that is relevant) so that I have a better understanding of the big picture of the data?

Here is the relevant section of the paper:

Our ex-vivo sample consists of 36 extracted human premolars, first molars and second molars. We simulated stress microfractures in a subsample of the total (n=22), while the other sound teeth were used as controls(n=14). In order to simulate microfractures, the teeth were placed in resin trays and stabilized using dental wax to simulate the periodontal ligament (figure 1.a.).  
A customized compression insert was fit into the central grooves of the teeth to evenly distribute forces onto the occlusal surfaces just as would happen in the mouth (1.b.). A continuous force (6400N) was exerted on the grooves using an INSTRON E3000 Electropuls. All the teeth were then examined with and without transillumination by two masked investigators (1.c.). The presence/absence of superficial micro cracks, their location, extent and orientation was recorded. Before image analysis, we confirmed that our standardized method induces cracks in extracted teeth in a reliable manner (p=0.017) via Chi square. From that superficial evaluation, cracks are mesio-distally oriented and propagate from the crown towards the root of the tooth, which mimics the common clinical presentations of stress induced dental cracks.