Introduction: The Apollo 17 double drive tube core (73001/2) was driven into the lunar surface in the Taurus-Littrow valley on a landslide deposit on the South Massif at Station 3 [1]. We report here, as a part of the Apollo Next Generation Sample Analysis (ANGSA) Initiative [2, 3], preliminary results for the maturity profile for the lower core section (73001) as measured by the ferromagnetic resonance (FMR) maturity index \( I_s/FeO \) [4-6]. The \( I_s/FeO \) profile for the upper core section is reported by [7].

Samples, Methods, and Results: To date, we have analyzed by FMR (for values of \( I_s \)) 74 samples from the <1 mm size fraction (dry sieved) of the second dissection pass (dissection intervals nominally 0.5 cm) of core section 73001. When FMR measurements are completed, the samples are to be transferred to Washington University in St. Louis for chemistry. For purposes of calculating preliminary values of \( I_s/FeO \) for 73001, we used \( FeO = 7.66 \) wt.% which corresponds to the average \( FeO \) concentration in the lower half of 73002 [8].

The intensity of the ferromagnetic resonance from fine-grained metal \( (I_s) \), produced at the very lunar surface by micrometeorite impact, was recorded on a Bruker EMXnano electron paramagnetic resonance (EPR) spectrometer operating at a ~9.5 GHz over the field range 0 to ~0.6 T and calculated relative to standard samples [4, 5].

The \( I_s/FeO \) profile for 73001 is shown in Fig. 1. To date, all 73001 regolith is immature (range = 9 to 18 units) and is an extension of the immature regolith in the lower portion of 73002 to deeper into the lunar surface. There does appear to be an increasing trend in maturity with depth, but it could be wholly or in part a manifestation of having assumed a constant \( FeO \) concentration.