Run 549 log

OK#1 + ice I nominally 90:10 by volume, unsaturated porosity not controlled. Actual ice fraction still being measured from twin and residue. 61.4 g of mixture at room T (≈dry-ish sand-castle consistency) lightly tamped in ~10 equal steps. Capped (not sealed) in usual way with Zr02 + dummy end cap and left open in freezer to freeze.
Clocks synchronized, all on std time now. (There was an issue during 546.)

11/15/07	0815	Ts 223 K K. P up in small steps: 0.5 MPa, few mins; 2.1 MPa, ~ 10 mins; 5 MPa, 3 mins; 10 MPa,~15 min
	0900	Pist contact at 10 MPa: 2.4502 V. Being careful to react quickly at V5 touch. V2 hereafter.
	0905	Pist contact at 20.5 MPa: 2.5035 V. Vessel is tight.
	0911	Pist contact at 30.5 MPa: 2.5491 V.
`	0918	Pist contact at 40 MPa: 2.5917 V. Touch was squishier than all previous (even 10 MPa). Guess this must be close to critical crushing pressure.
	0923	Pist contact at 50 MPa: 2.6339 V. Firmer. (Digital Heise 70.2 = Analog Heise 69.4 MPa)
	0931	Pist contact at 70 MPa: 2.7220 MPa. Vessel still tight.
	0935	Pist contact at 80 MPa: 2.7664 V.
	0939	Pist contact at 90 MPa: 2.8357 V. Continues to be substantial displacement at each step.
	0944	Pist contact at 100 MPa: 2.9122 V. Vessel still tight. Last 2 steps have been biggest displacements. All should provide good compaction curve for comparison with other water contents.
	1023	Unloaded s gage at 60 MPa: -0.007386/-0.007381/<u>7384</u>.
	1026	1st contact: <u>2.8697 V</u>. NOTE: pretty much 0 rebound from 100 MPa, accounting for vessel modulus. Calculate starting length for Area correction VI: starting length 4.81" – 2.00" parts – 0.45 V*0.17781"/V green trace = 2.73". Green trace estimate is 0.47 V change between 10 and 100 MPa, est + 0.05V for 0-10 MPa, - vessel stretch < 0.1 V [2 div] ≈ 0.45 V.
	1045 (1)	24 mV (30 MPa), 60 MPa, 223 K. Accidentally climbed to 27.5 mV at MR2000 V50, putting a LOT of strain (~1%) into the sample in the process. <u>Might need to reproduce this misstep w comparative samples</u>.
	1053	Record interval to 60 s.
	1450	100:1 gearing in. Can almost hide edot=0 in large V swings w/ 10:1 gears.

11/16/07	0640	A-ok. Shoot screen image 459(1,to7498). Current reset ~0.075 and slowing. Quite an amazing pattern over last 5000 points on Motor Controller chart: ~36 nearly identical cycles of Vover a range of 0.03-0.05 and s over ~0.005 V. Even more interesting that I changed P/I from 200/0.000010 to 100/0.000003 last night at point 4151 when I took screen image 549(1,to4151). Can now see that amplitude of V swings changed at point 4151, but amplitude of s swings did not change at all, and periods of both did not change. Gotta be stick slip.
	1129	(point 9213) Cycles continue. P/I from 100/- to 50/-. Mean reset down to ~0.060.
	1757	(point 11612) Mean reset ~0.040.
11/17/07	0608	(point 16163) Mean reset ~0.030. ~Perfect cycling continues.
	1806	(point 20646) Mean reset <0.030. P/I to 30/0.000002.
11/18/07	0623	(point 25225) Mean reset steady at ~0.028. Stick slip events continue at same frequency, but amplitude is muted. May or may not be coincident with last change in P/I.
	1830	(point 29711) V nearly perfect steadiness, continues to fall, mean reset ~0.020.
11/19/07	0630	(point 34177) Mean reset <0.01.
	1830	(point 38658) Getting past a all-day spot of softening. Reset climbed to >.045, now ~0.030.
	2055	T blip as LN tank runs out temporarily. Cap V and reset at ~0.03 to prevent any problems during recovery.
11/20/07	0619	(remote) Ts 224-227, LN ran out ~ 1 hr ago. Stop, unload. Reverse at V10 (remember: 100:1 gearing), stop drivemaybe 10 s after s gage stops changing fast. Interested in getting only estimate of gage zero, but strong interest in possibility of rebound.
	0632	Unloaded s gage at 60 MPa (2.993 V on Heise): –0.003484(?)/–0.003454/<u>3469</u>.
	0644	s gage now reads –0.003005, so apparently no self loading, just drift with T. Back piston farther out of the way. Note quick drop of s gage to ~ -0.0028, so maybe there was self loading. Hard to tell with concurrent T effect. Back piston ~0.15 V (~3 div on green trace). Check contact later when P, T are corrected.
	1058	Ts 235-238. New 120-L dewar on.
	1521	Ts, red trace been ~steady for 2 hrs. Unfortunately I had setpt at 225 K rather than 223 K. 10:1 gearing back in. Run pistons further out to assure no contact. Assured.
	1525	Unloaded s gage at 60 MPa: -0.004864/-0.004868/<u>4866</u>. 2.985 V on dig Heise = 59.9 MPa on analog.

1530 Pist contact at 3.3902 V. Was only 2 divs from where I left it (going outward) this morning after backing off 3 divs, so may be slight rebound. See on chart that wrong way bounce of green trace on withdrawal is >0.5 divs.

11/15/07 1144 hrs 0.076339"/0.027963 (1)
11/15/07 1511 hrs 0.085246"/0.031218
11/16/07 0656 hrs 0.097097"/0.035566
11/16/07 1758 hrs 0.100385"/0.036771
11/17/07 0613 hrs 0.103420"/0.037883
11/17/07 0612 hrs 0.105313"/0.038576
11/18/07 0635 hrs 0.108123"/0.039605
11/18/07 1835 hrs 0.110435"/0.040452
11/19/07 0631 hrs 0.111822"/0.040960
11/19/07 1832 hrs 0.114075"/0.041786
11/20/07 0621 hrs 0.114165"/0.041819