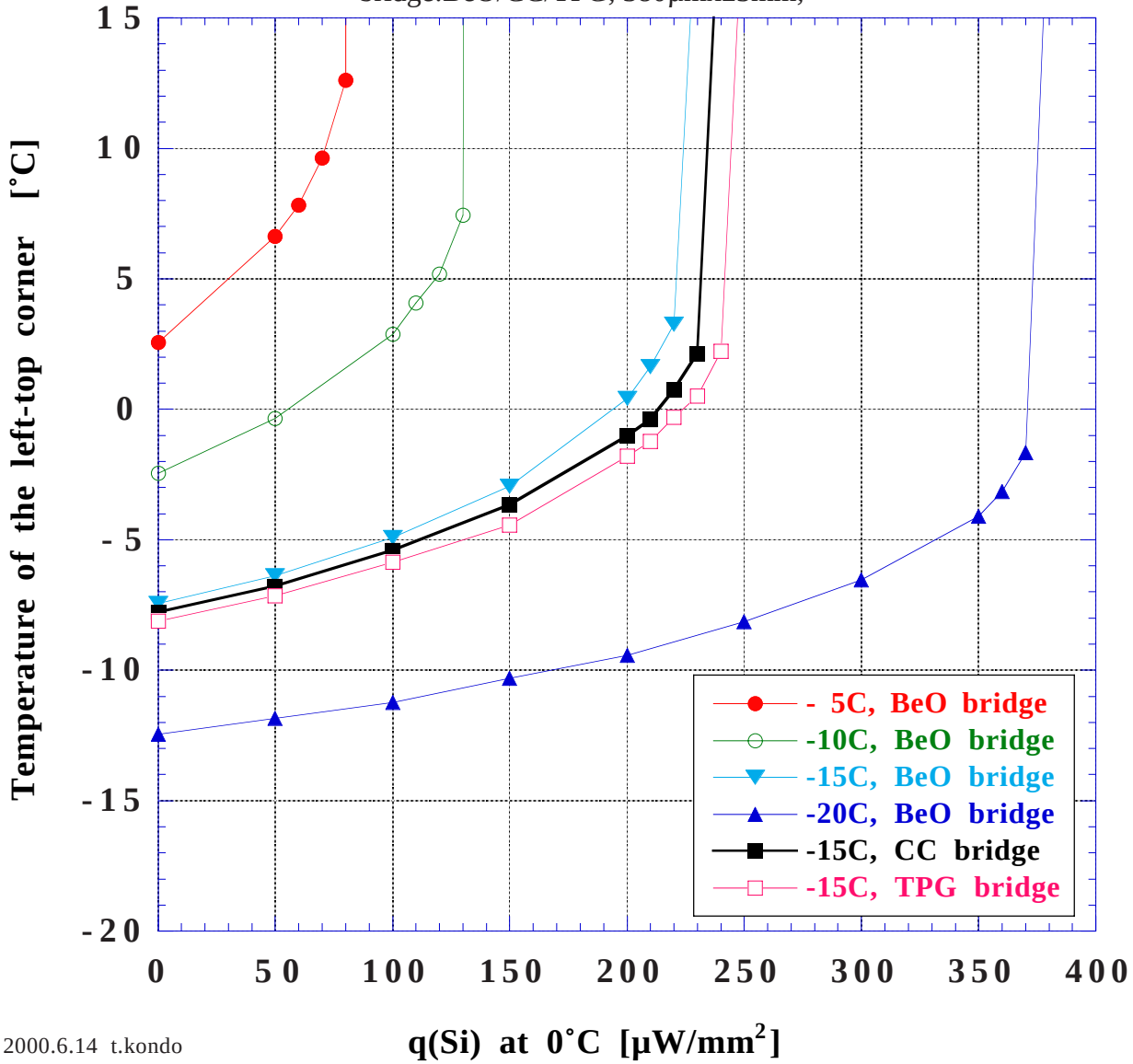
ATLAS-barrel-SCT thermal simulation with BeO/CC/TPG bridges

model-6, BB:TPG1700 (380µm), Q_{IC}=7.2W, Kapton hybrid, no convection

bridge:BeO/CC/TPG, 380µmx23mm,

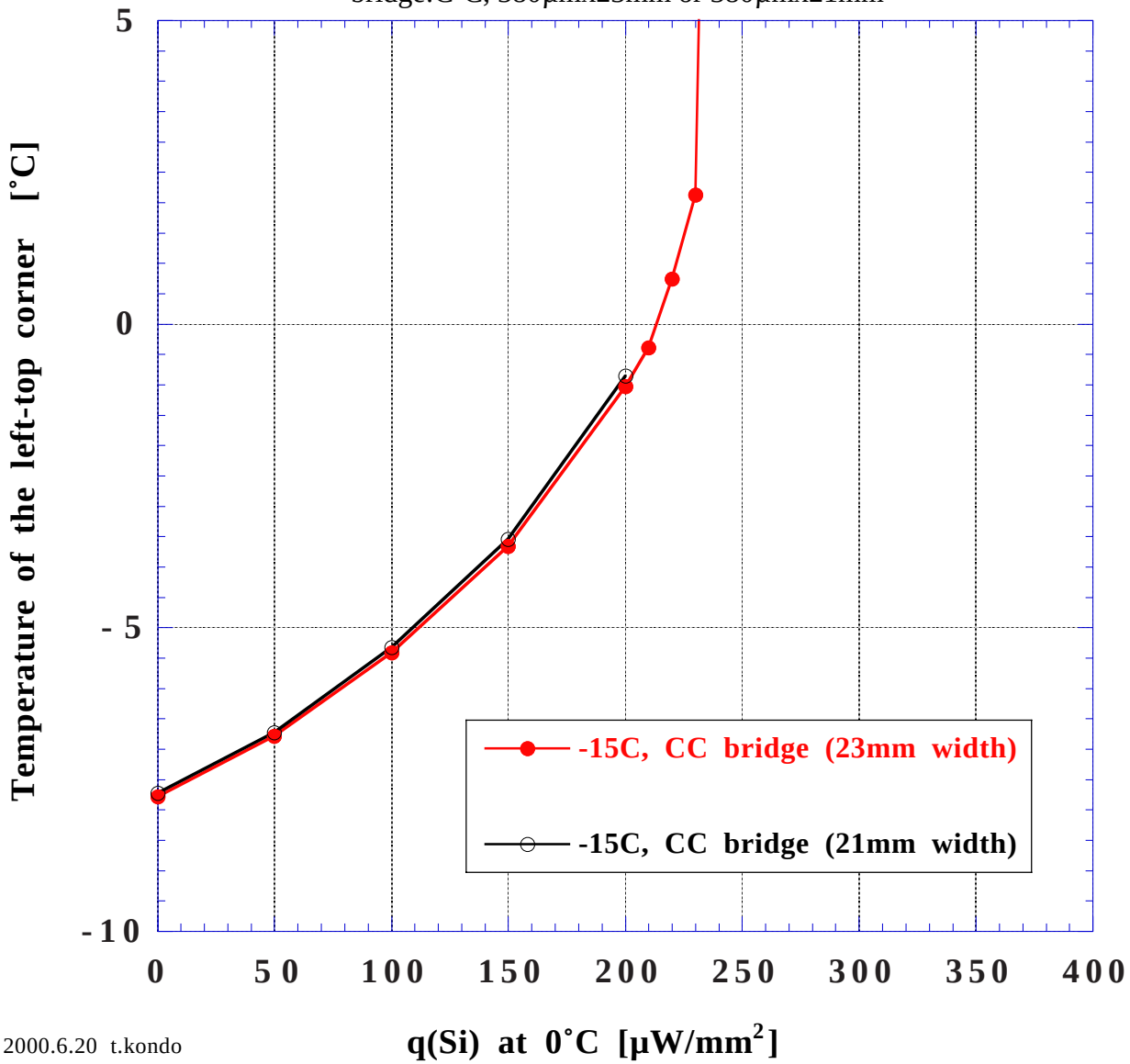


2000.6.14 t.kondo

ATLAS-barrel-SCT thermal simulation with C-C bridges

model-6, BB:TPG1700 (380µm), Q_{IC}=7.2W, Kapton hybrid, no convection

bridge:C-C, 380µmx23mm or 380µmx21mm



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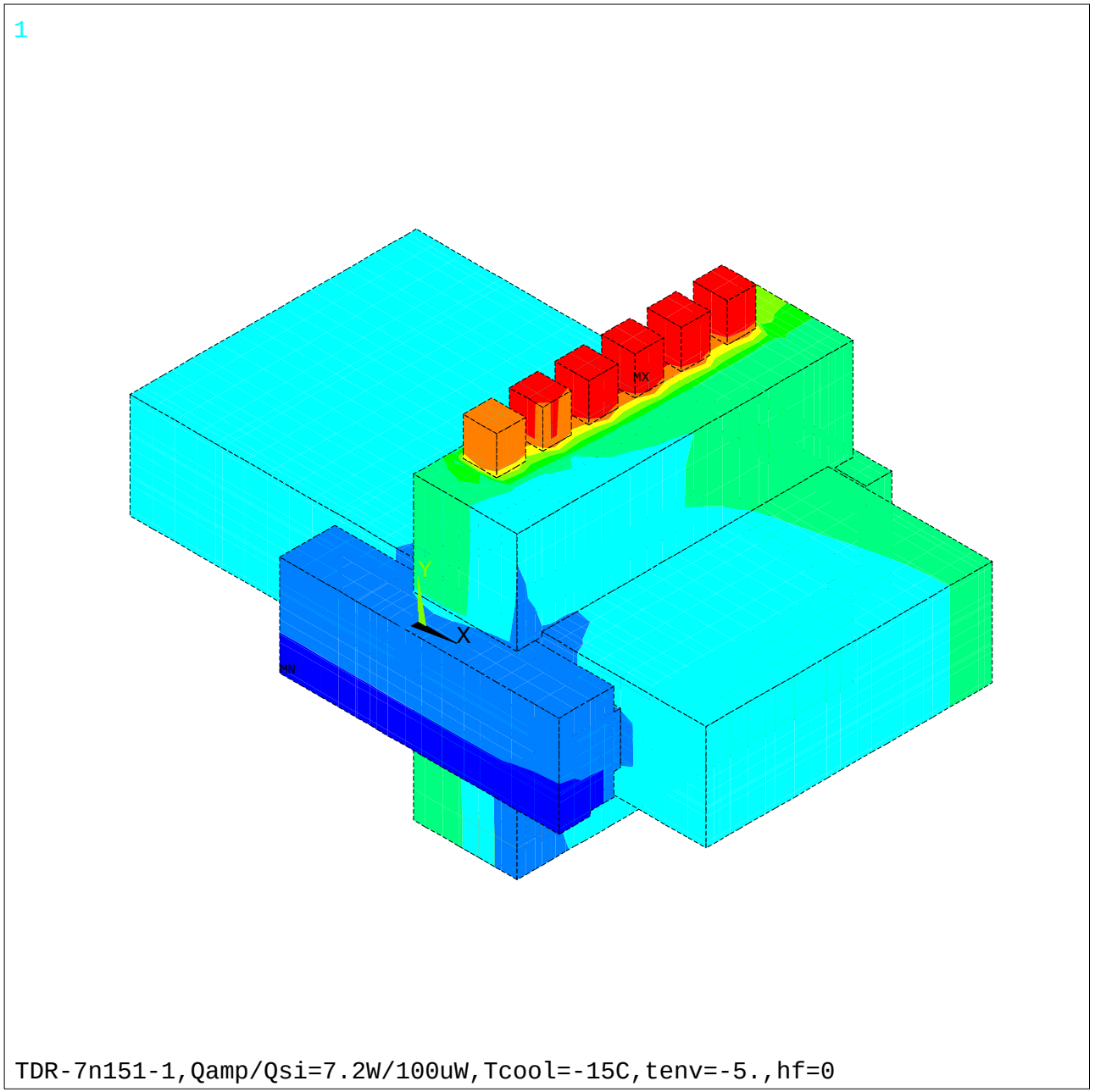
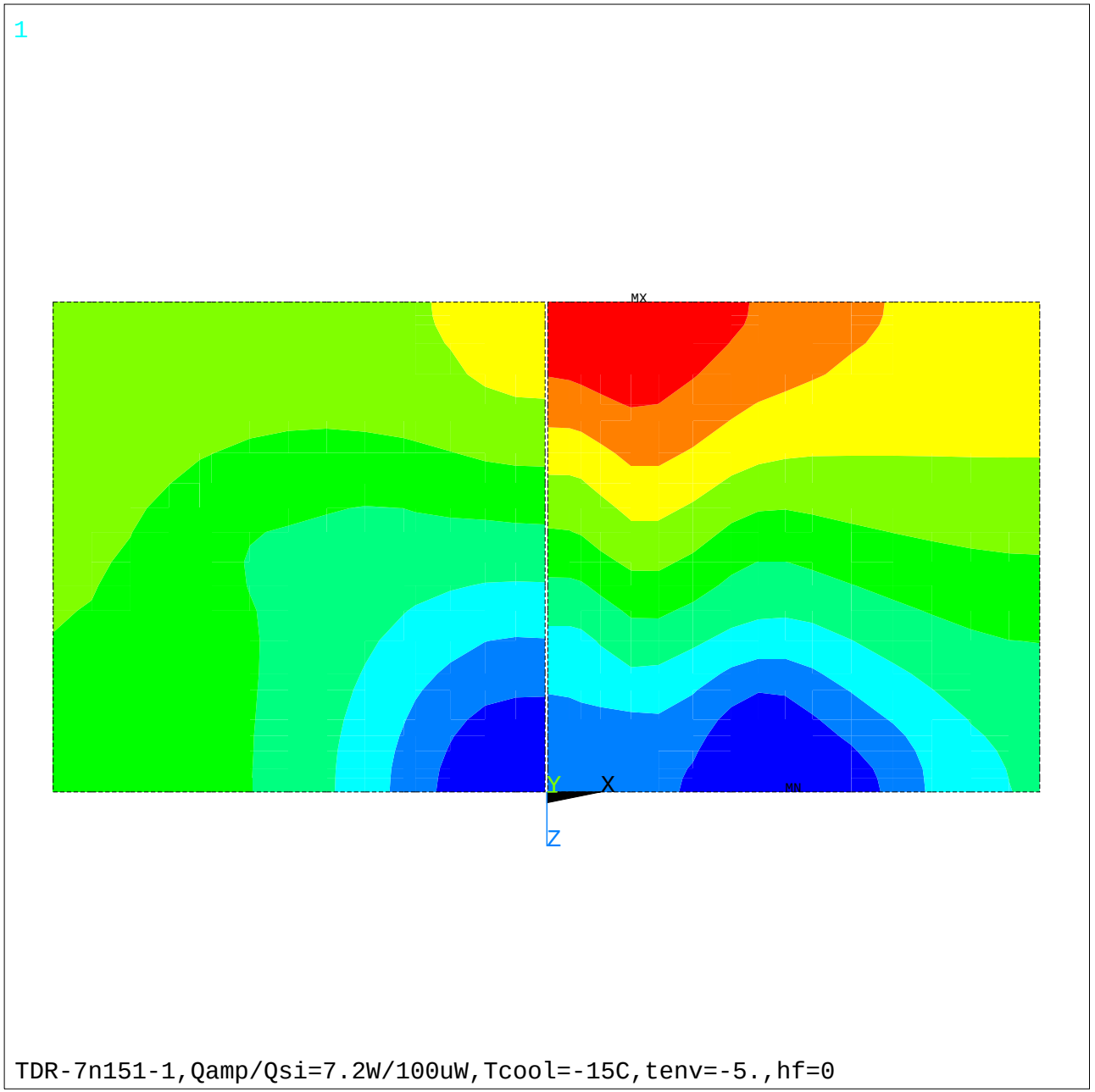
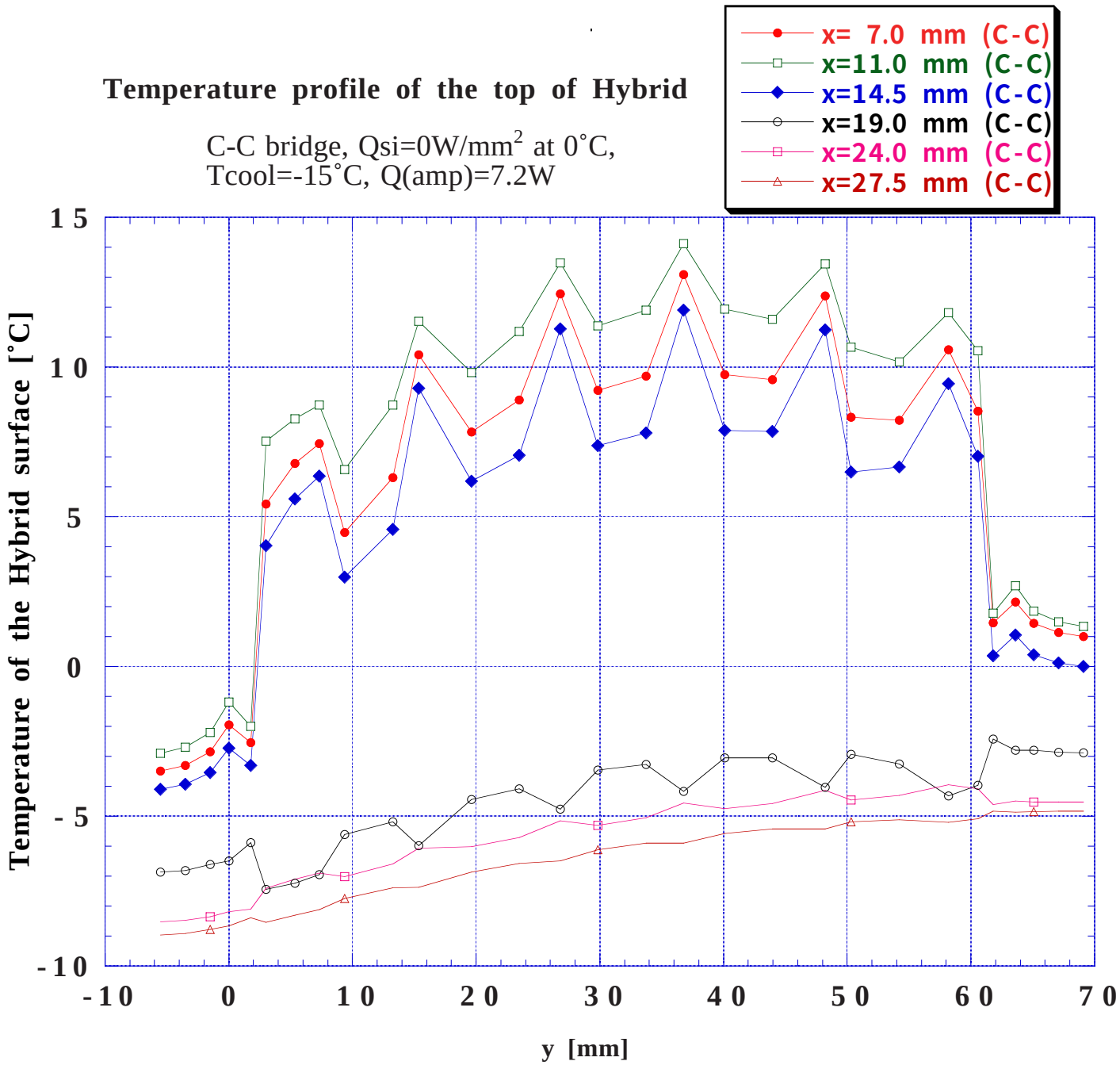
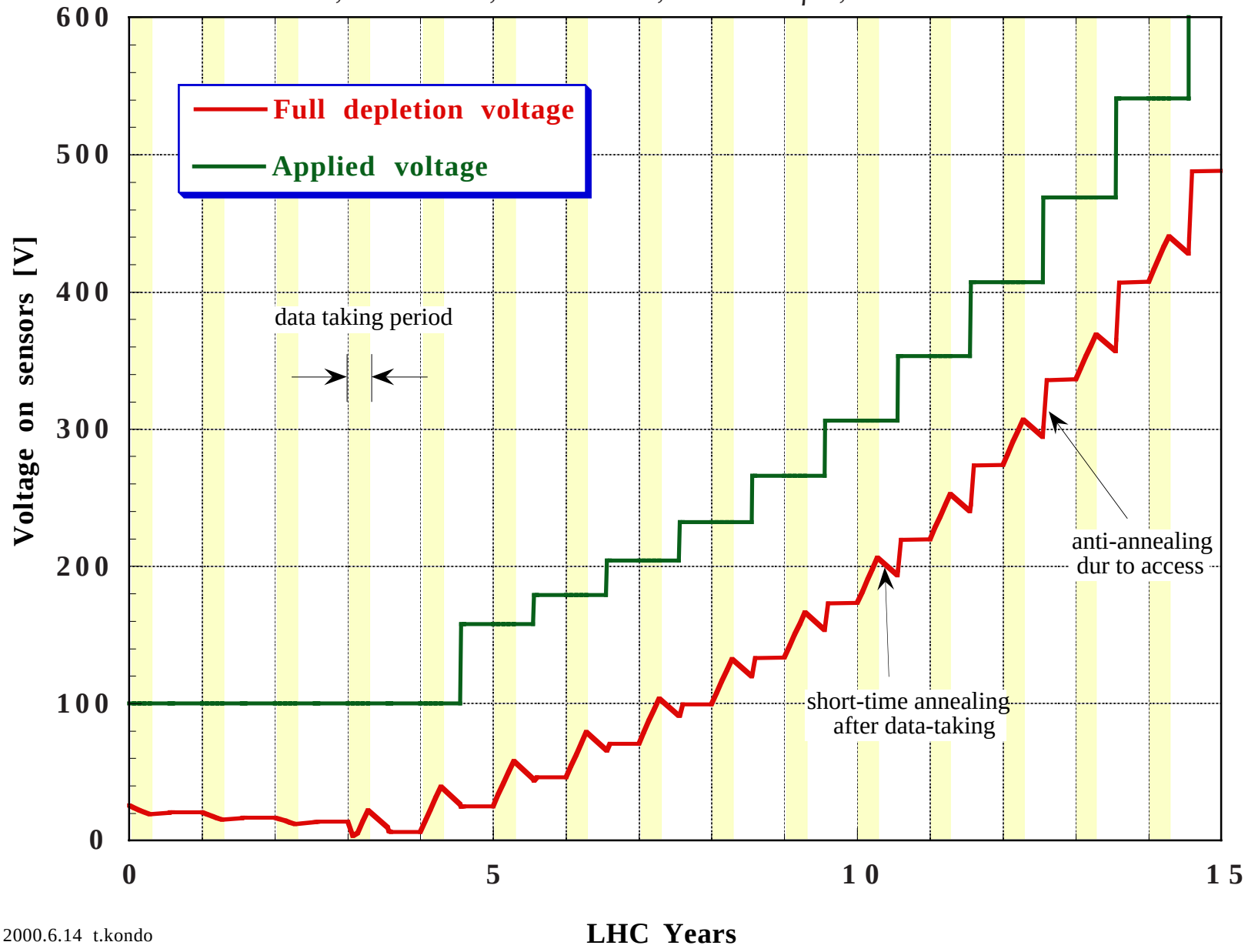

1
ANSYS 5.1
JUN 19 2000
23:12:35
PLOT NO. 1
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
TEMP
SMN =-15
SMX =15.046
-15
-11.662
-8.323
-4.985
-1.646
1.692
5.031
8.369
11.708
15.046
MX
MN
Y
X
TDR-7n151-1,Qamp/Qsi=7.2W/100uW,Tcool=-15C,tenv=-5.,hf=0


1
MX
MN
Y
X
Z
ANSYS 5.1
JUN 19 2000
23:13:48
PLOT NO. 3
NODAL SOLUTION
STEP=1
SUB =1
TIME=1
TEMP
SMN =-8.416
SMX =-3.709
-8.416
-7.893
-7.37
-6.847
-6.324
-5.801
-5.278
-4.755
-4.232
-3.709
TDR-7n151-1,Qamp/Qsi=7.2W/100uW,Tcool=-15C,tenv=-5.,hf=0


Temperature profile of the top of Hybrid
C-C bridge, Qsi=0W/mm2 at 0˚C,
Tcool=-15˚C, Q(amp)=7.2W
x= 7.0 mm (C-C)
x=11.0 mm (C-C)
x=14.5 mm (C-C)
x=19.0 mm (C-C)
x=24.0 mm (C-C)
x=27.5 mm (C-C)
Temperature of the Hybrid surface [˚C]
15
10
5
0
-5
-10
-10
0
10
20
30
40
50
60
70
y [mm]

Evolution of Full-depletion and Applied voltages

r=30 cm, normal flux, Tcool=-15˚C, sensor 260µm, no convection



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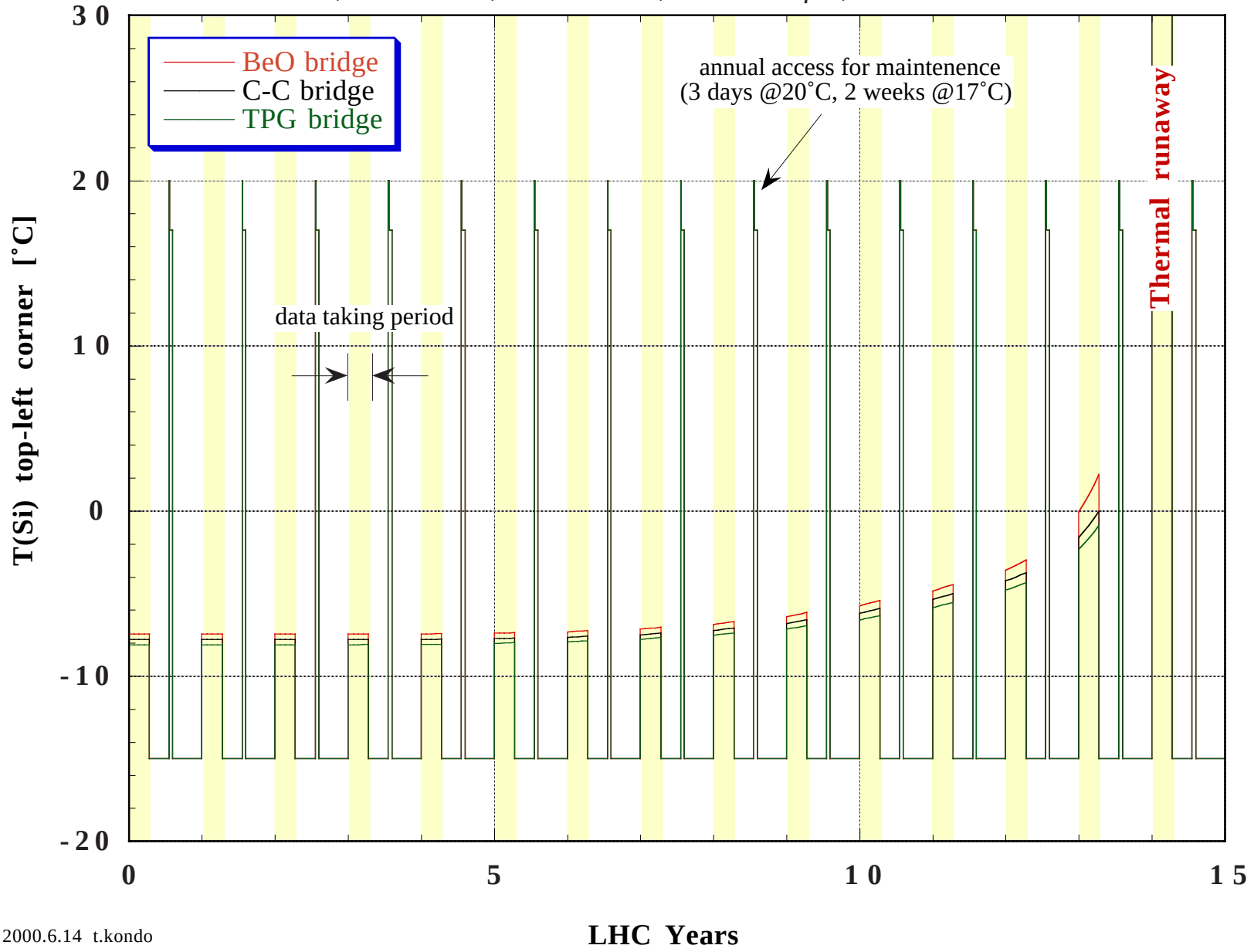
Evolution of the Temperature of Silicon sensor (top-left corner)

r=30 cm, normal flux, Tcool=-15˚C, sensor 260μm, no convection



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