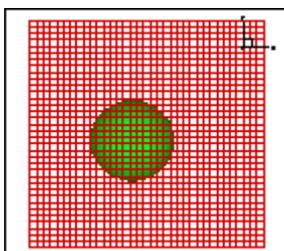


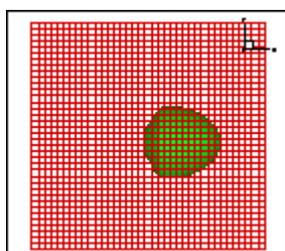
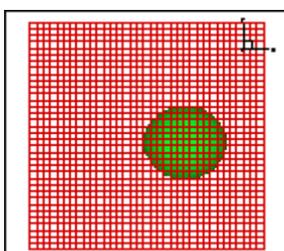
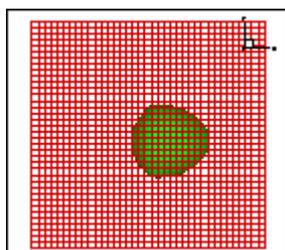
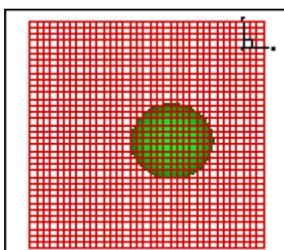
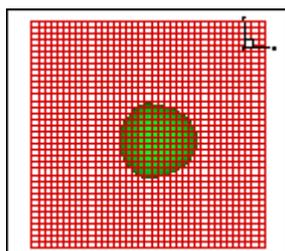
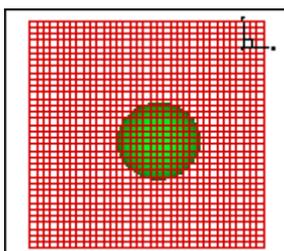
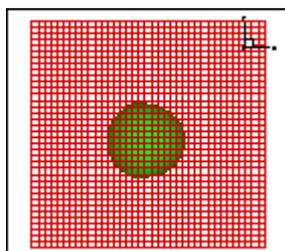
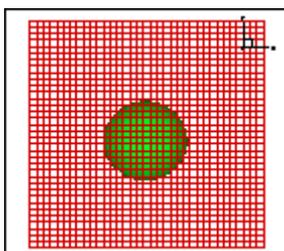
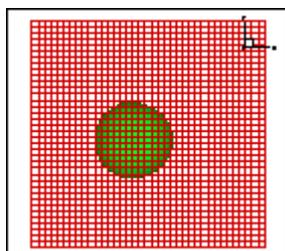
Level set 法による鋳造プログラム

一様流における球

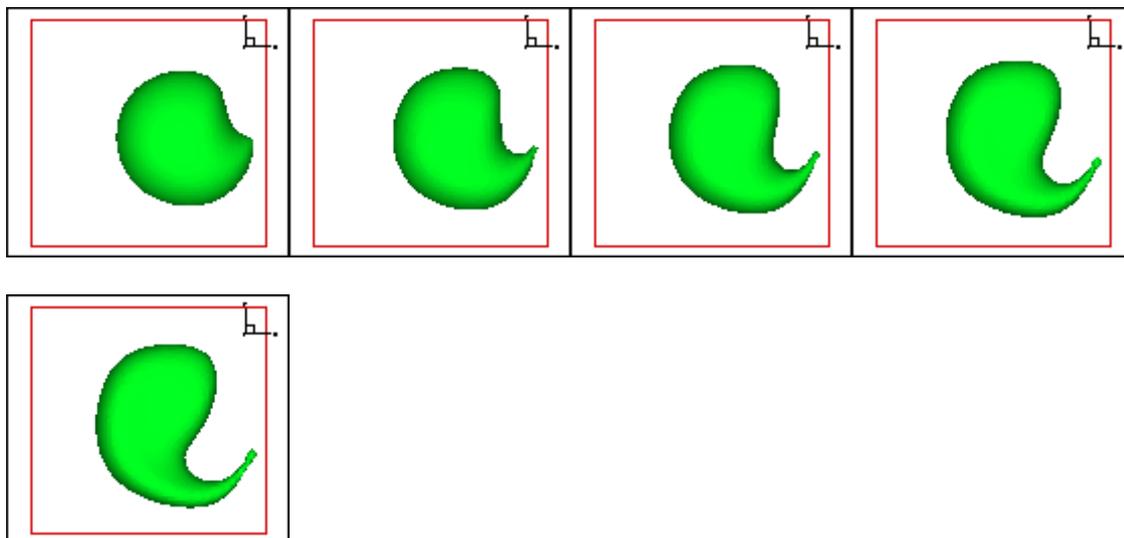
01_upwind



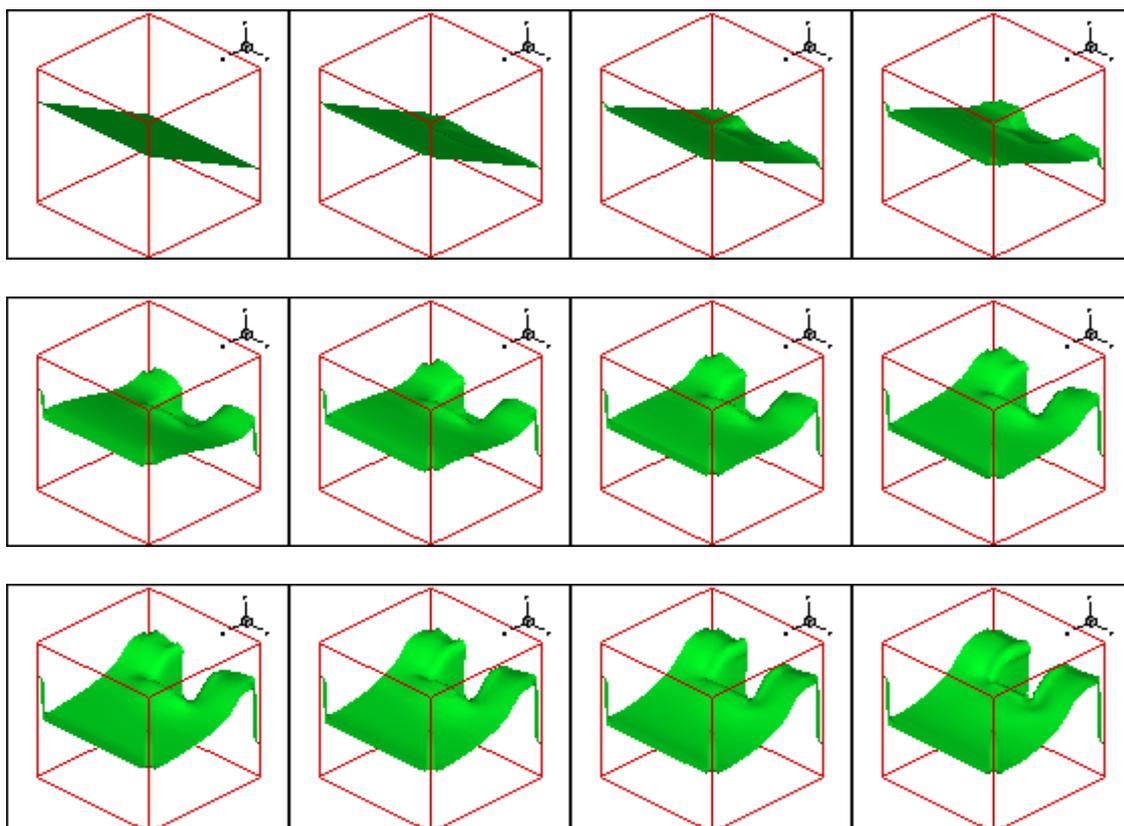
03_MUSCL



Cavity flow 中の球面

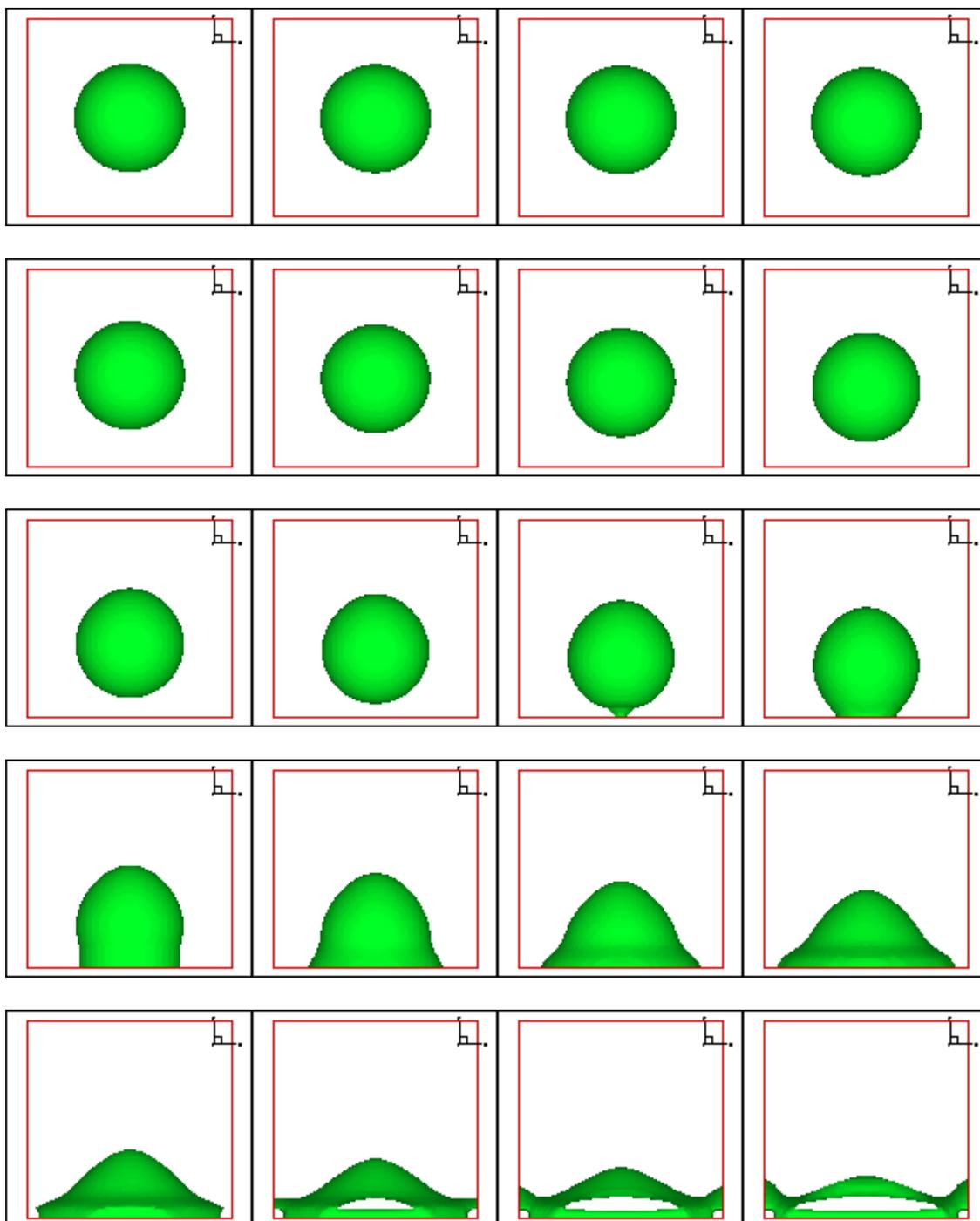


重力場の組み込み



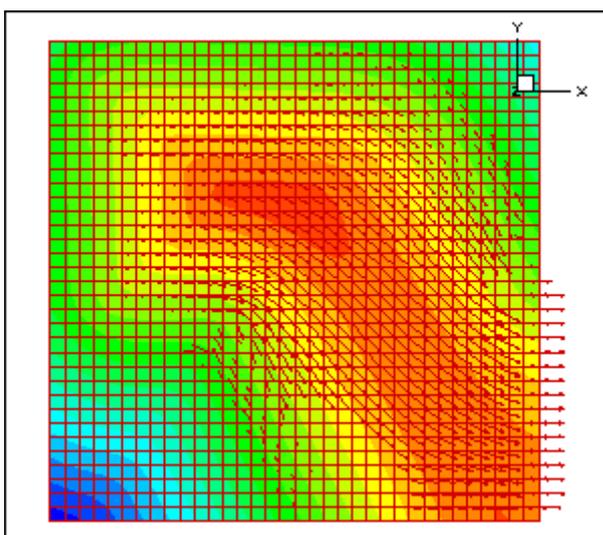
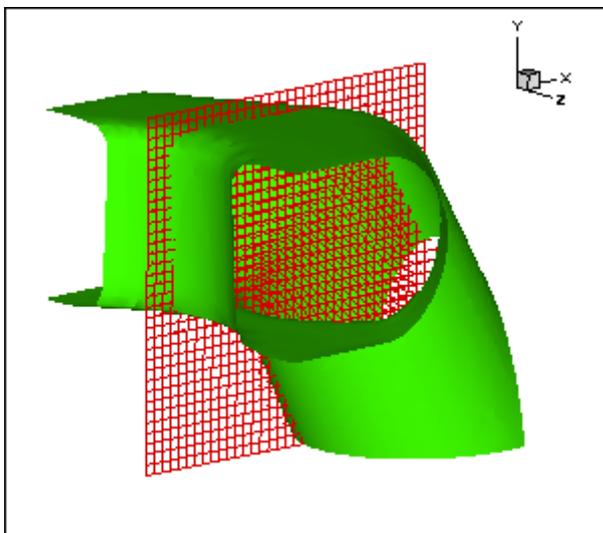
表面張力の込みこみ

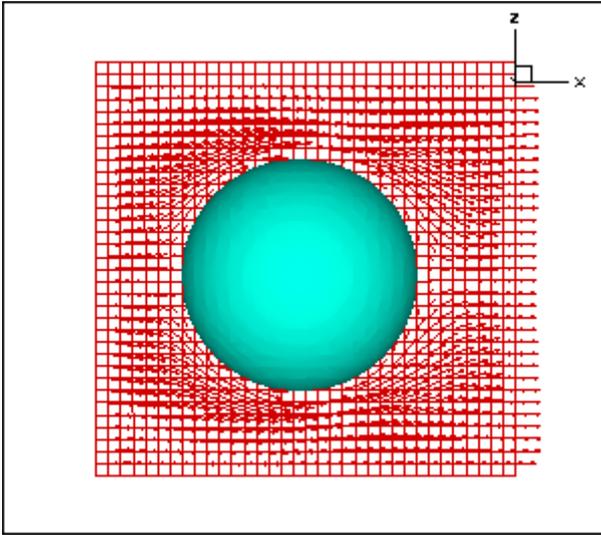
表面張力を Continuous surface model を用いて実装した。まだデバッグ中で十分に機能していないが、Water を投下した例を以下に示す。周囲は Air。立方体の一辺の長さは 10cm。



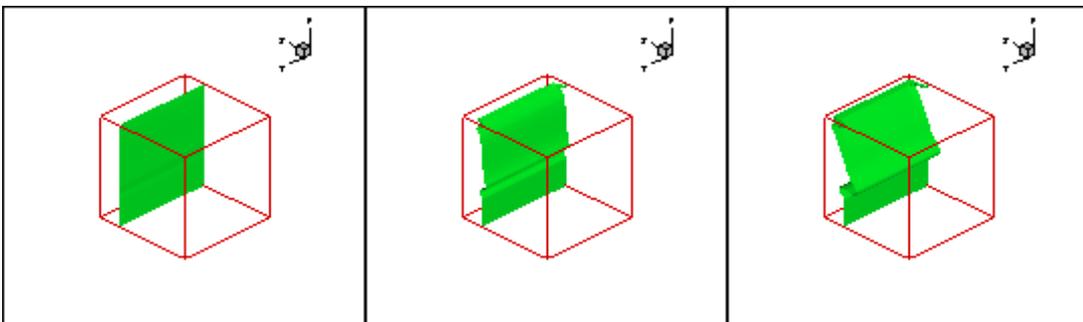
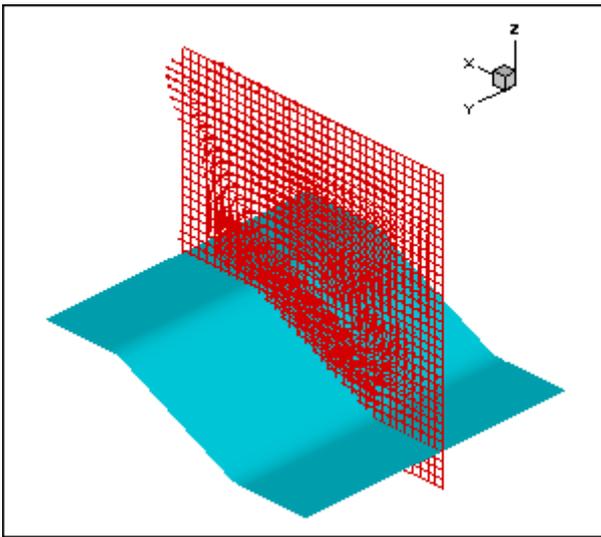
形状近似の組み込み

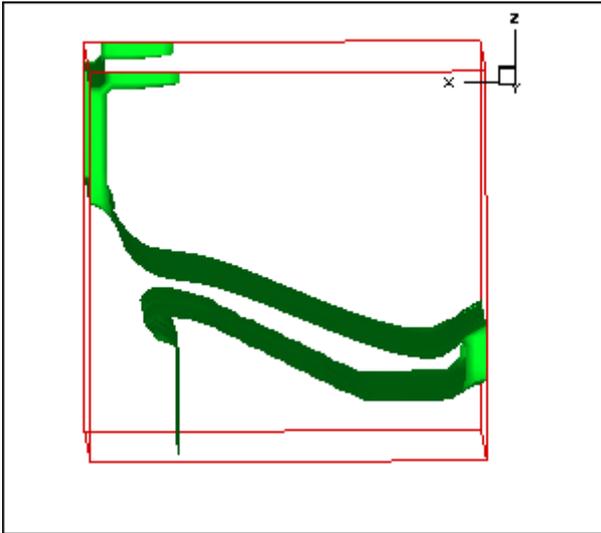
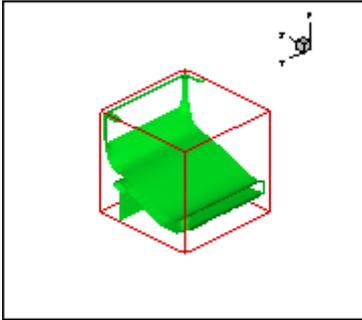
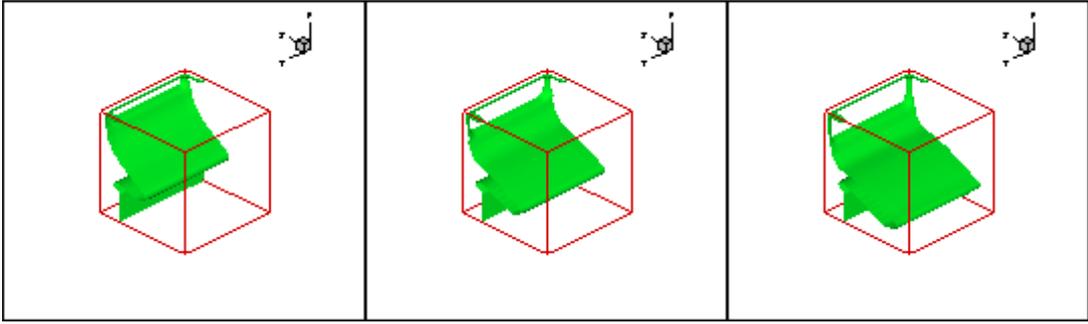
一流体における速度場の計算結果



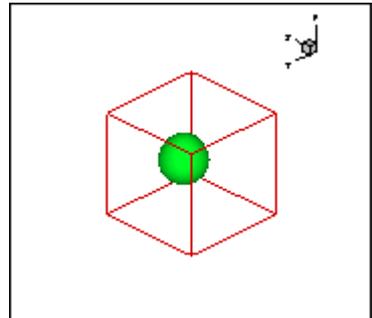
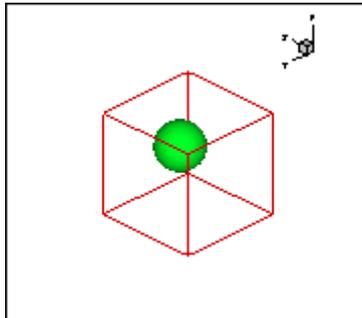
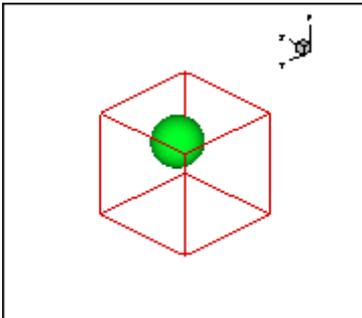


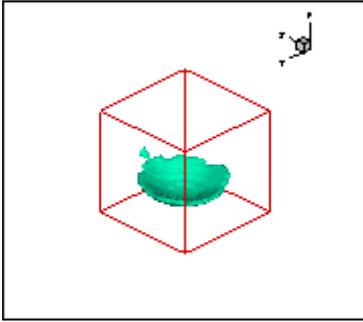
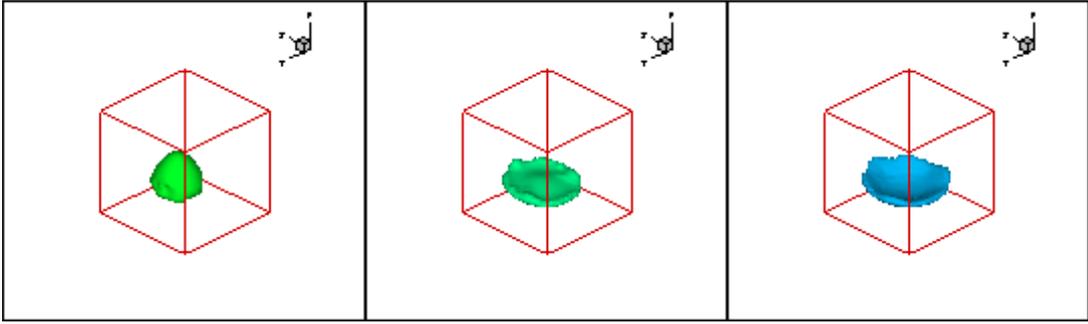
2 流体の自由落下問題



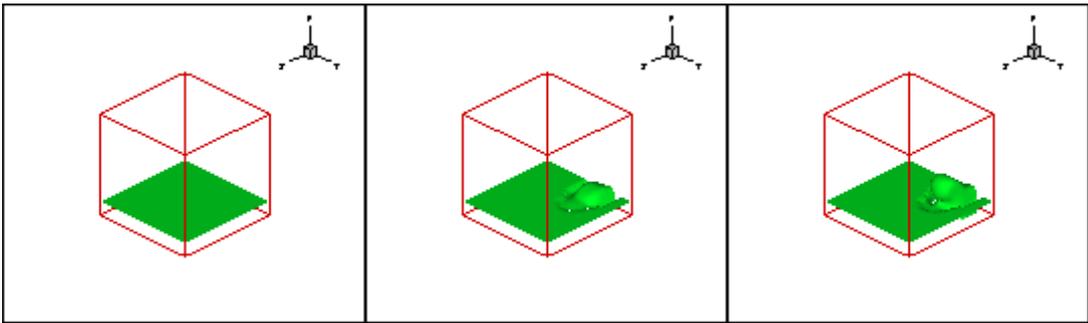
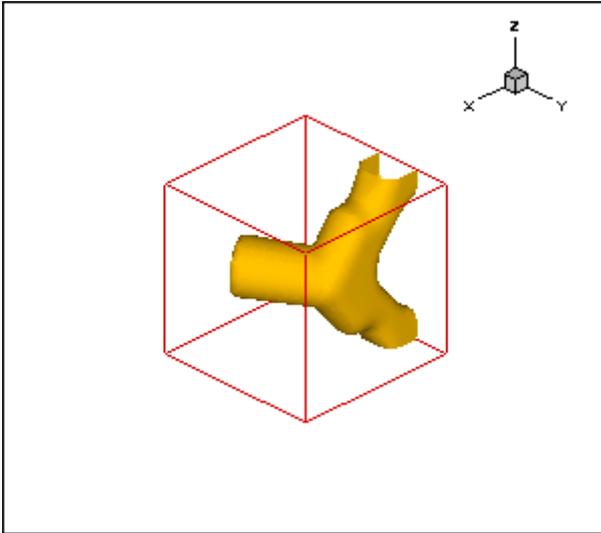


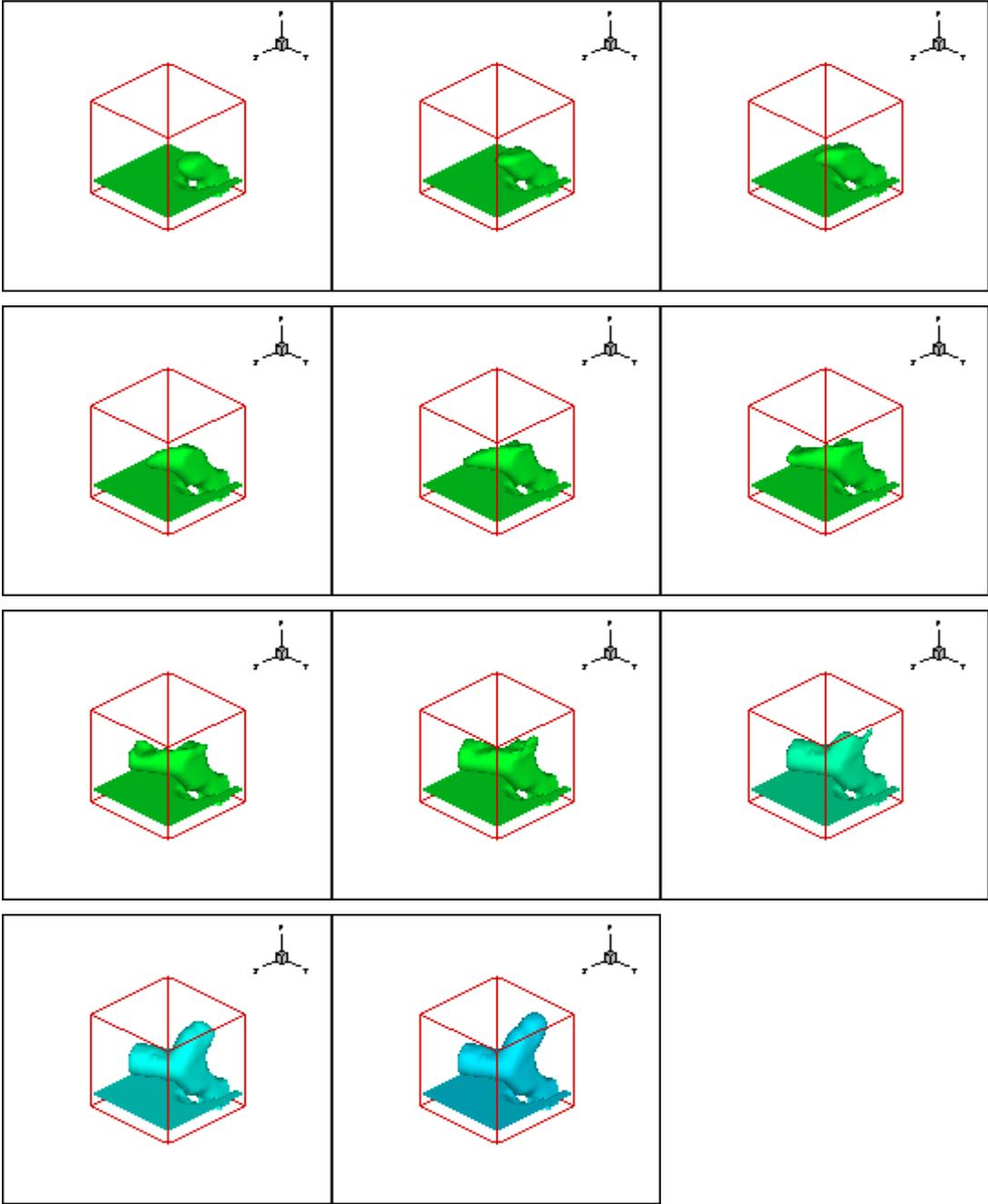
水滴の球面上への自由落下



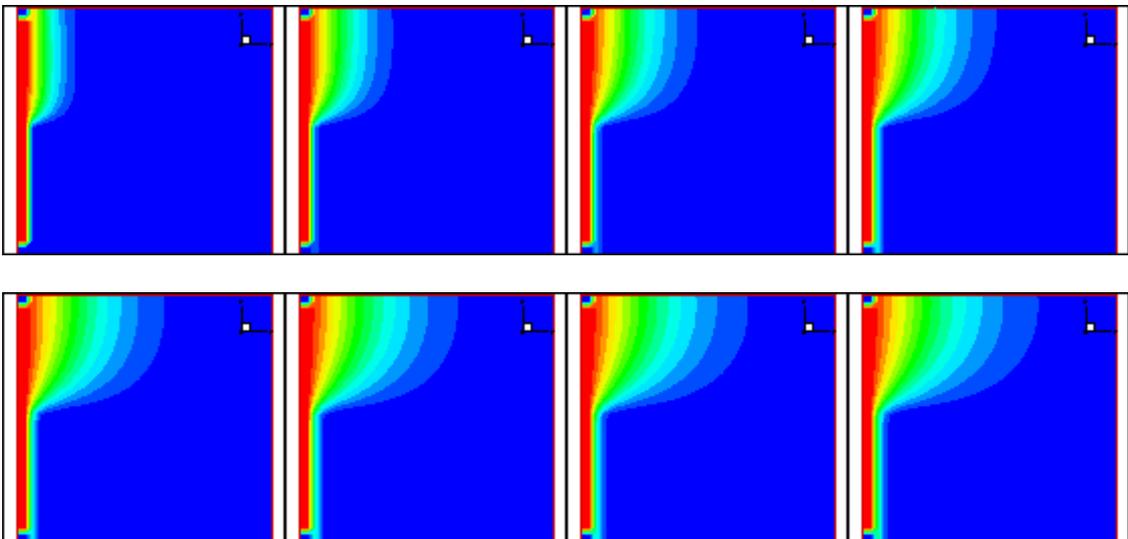
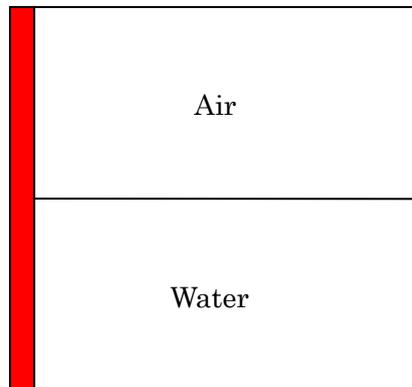


水の充填





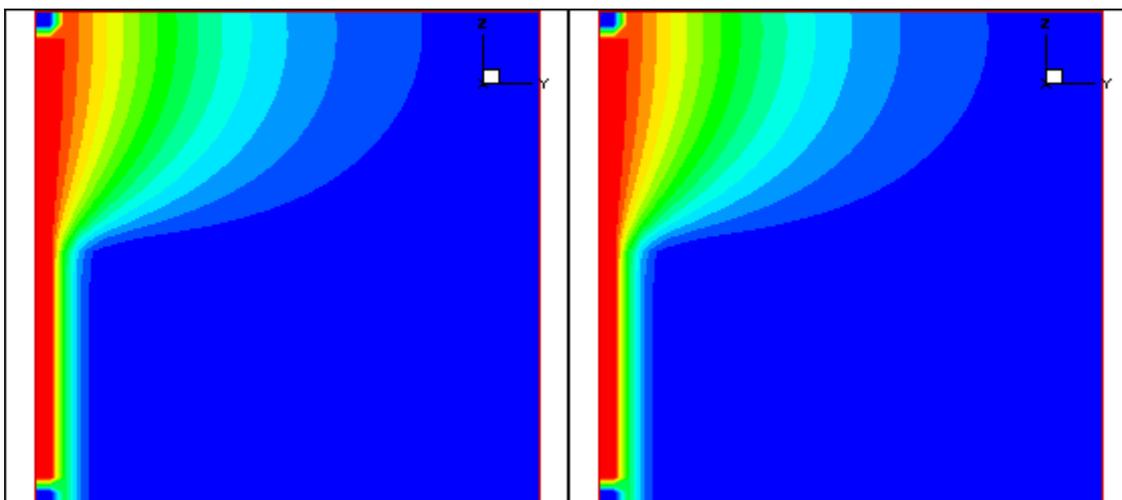
1. 空気と水に対する熱流れ。(重力なし、No Buoyancy)



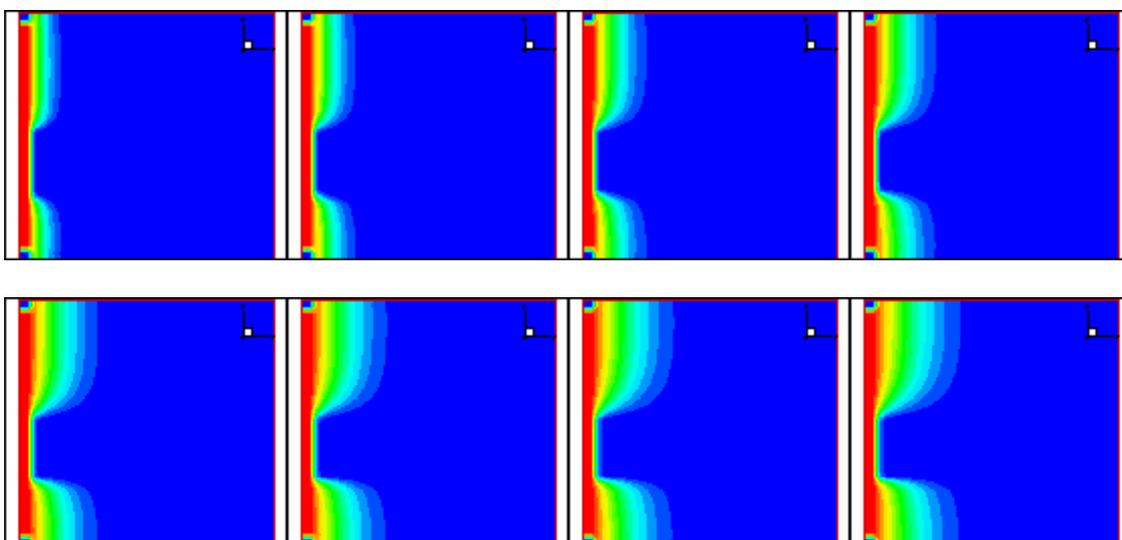
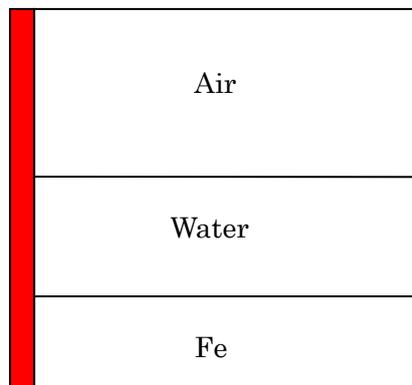
2. Euler Explicit と Euler Implicit の計算比較。Implicit は時間ステップを 5 倍にとって同じ計算時間まで計算した。Implicit では 1 cycle の sor iteration がこの例では、5 倍以上なので、効率は Explicit のほうがよかった。

Euler Explicit

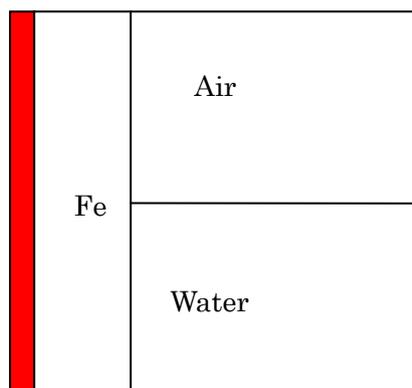
Euler Implicit

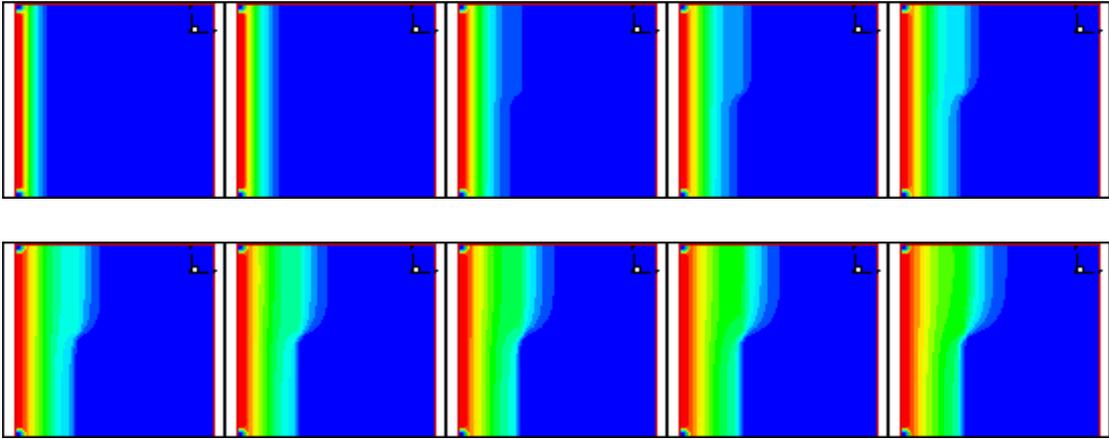


3. SDF 境界における空気と水と鉄の熱流れ (重力なし、No_Buoyancy)



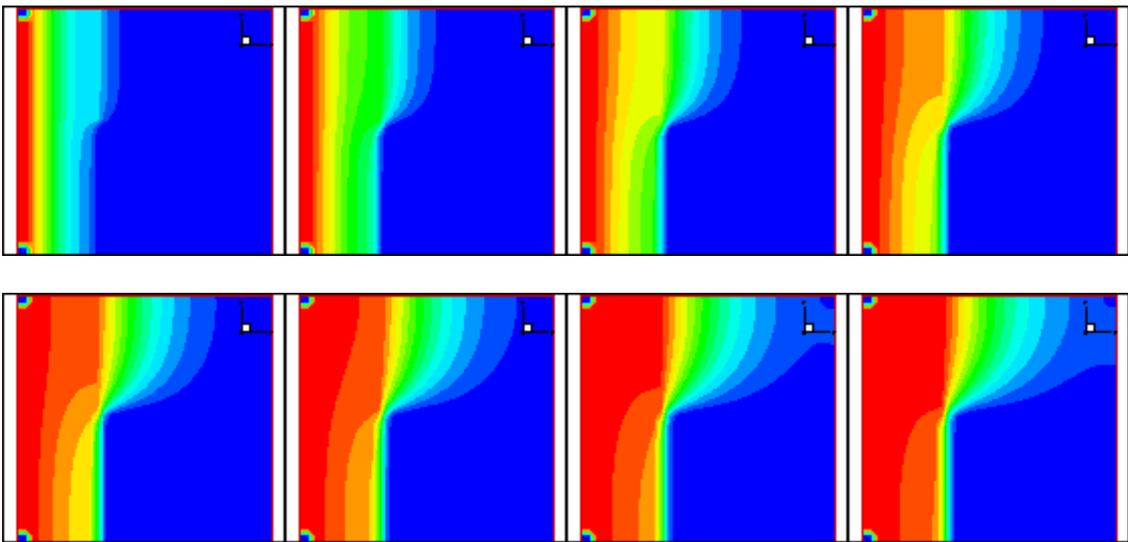
4. SDF 境界における空気と水と鉄の熱流れ 2 (重力なし、No_Buoyancy)



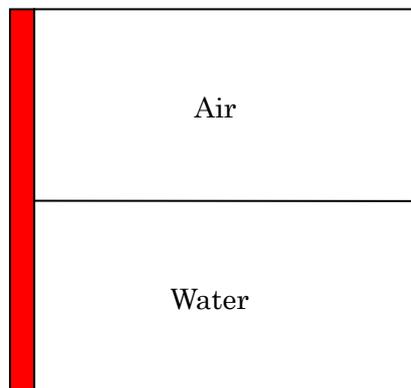


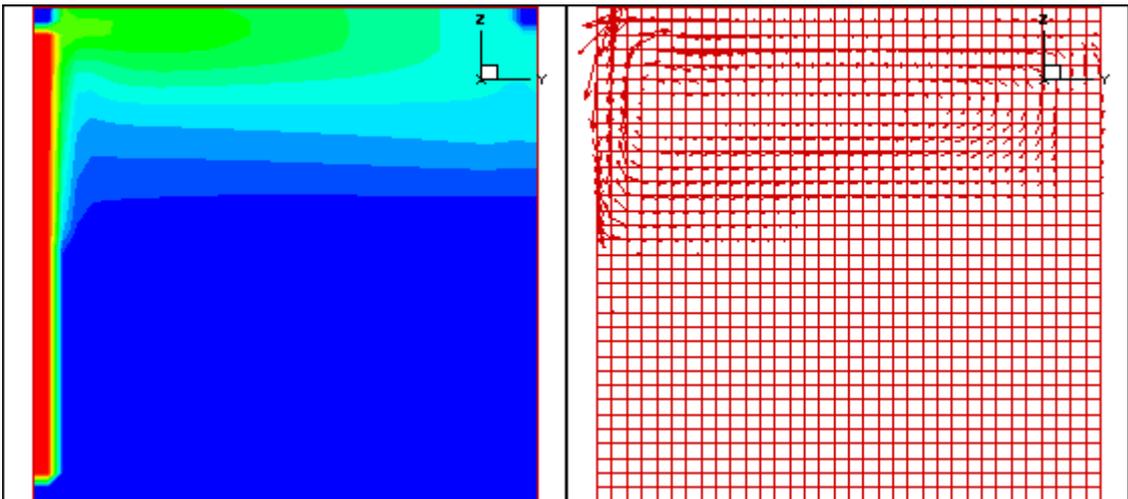
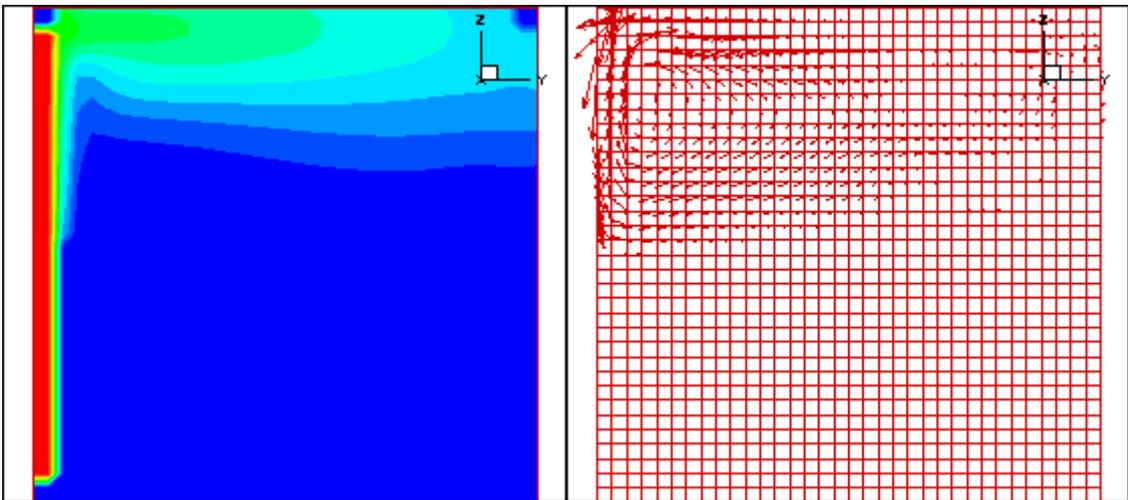
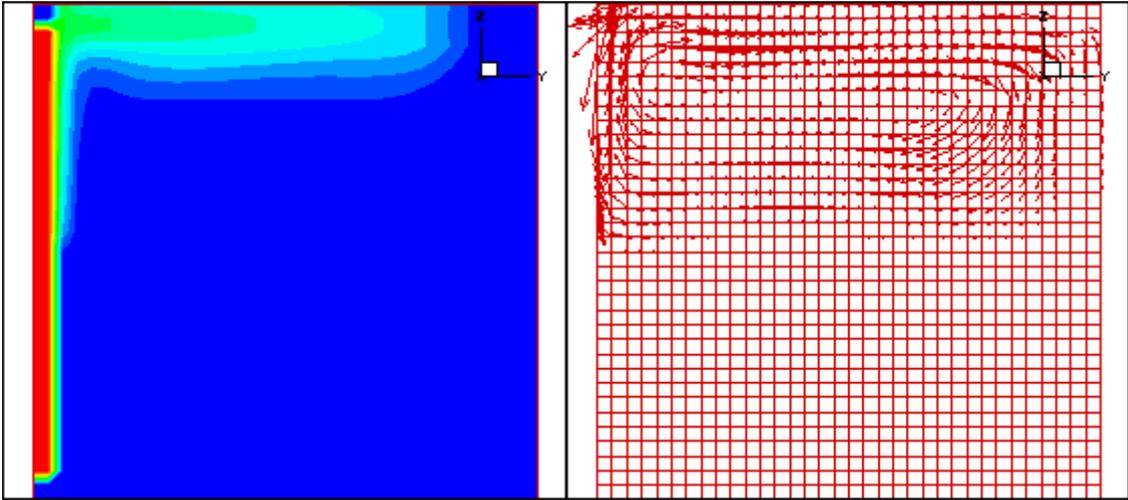
5. SDF 境界における空気と水と鉄の熱流れ 3 (重力なし、No_Buoyancy)

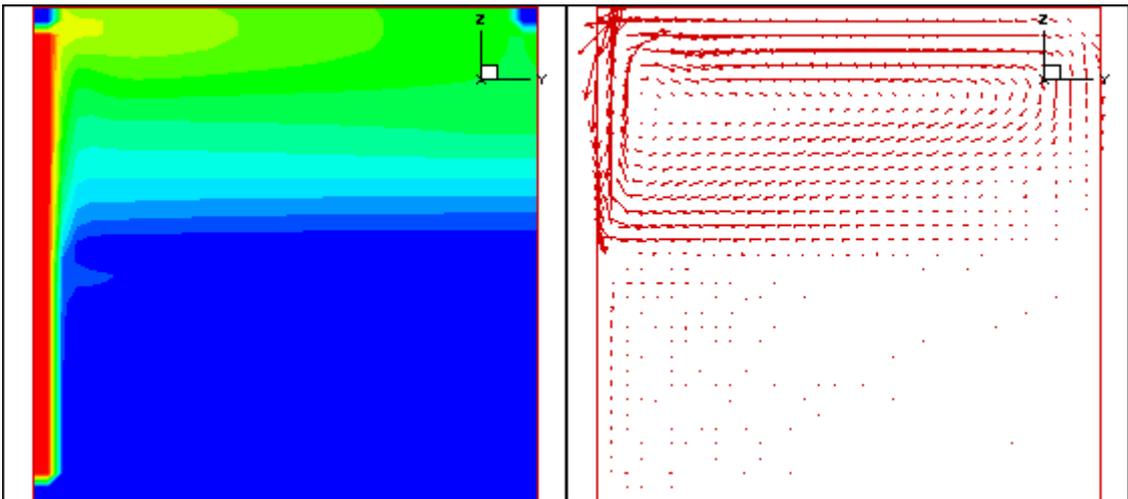
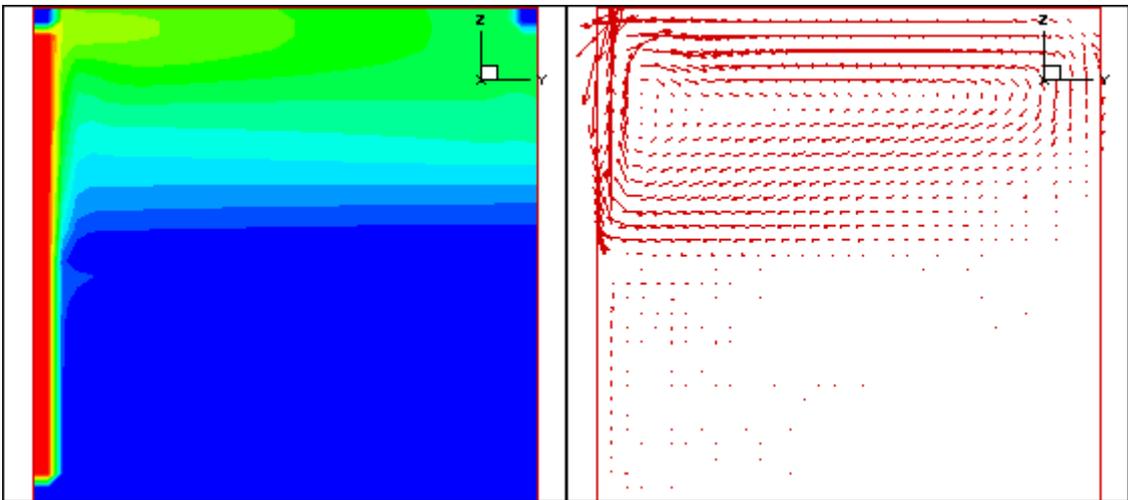
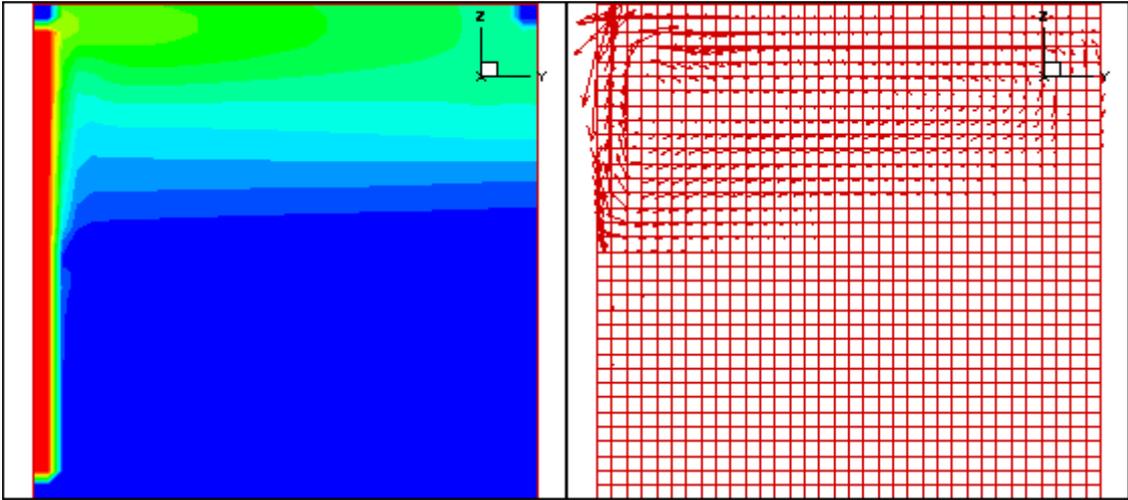
Implicit で多くの時間計算したもの。

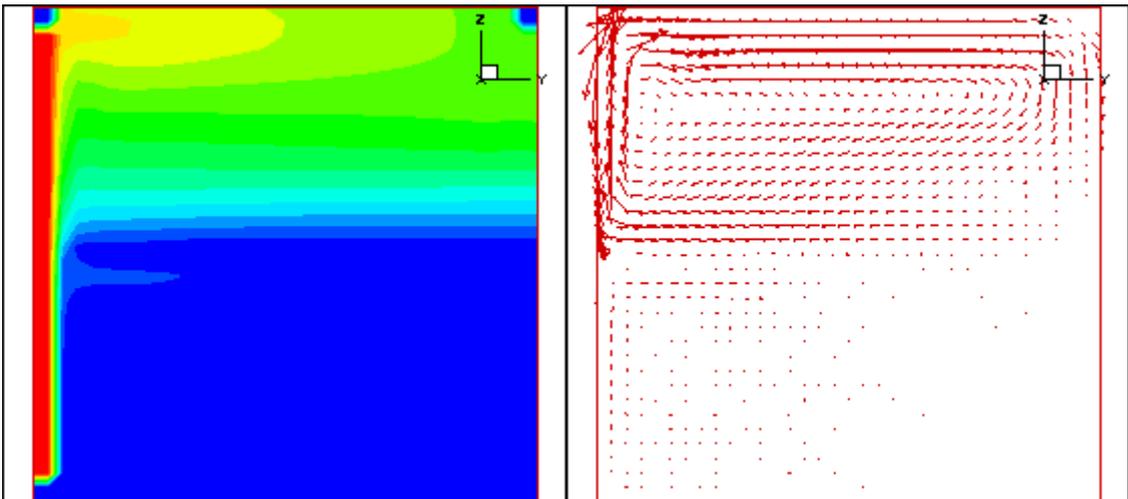
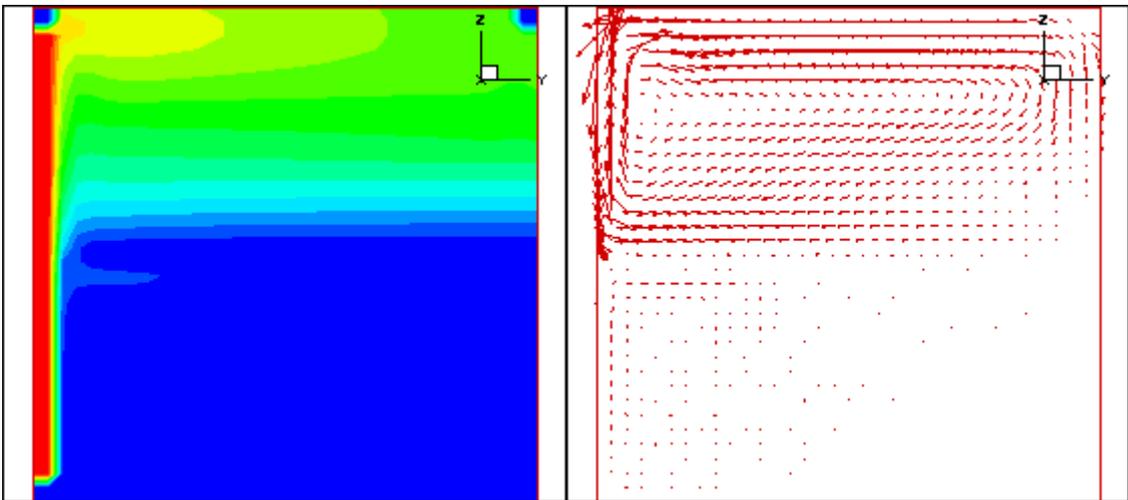
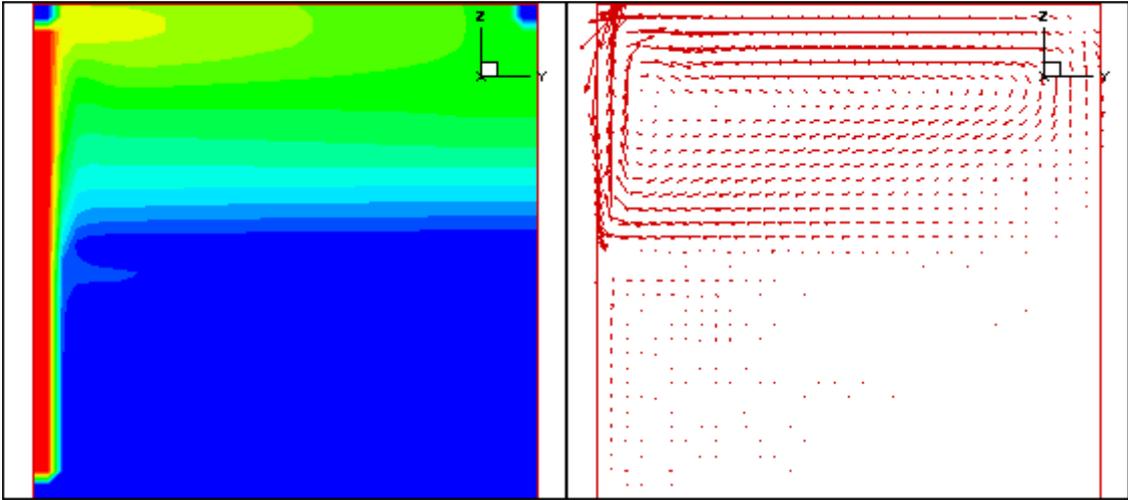


6. 空気と水に対する熱流れ。(重力あり、Boussinesq)

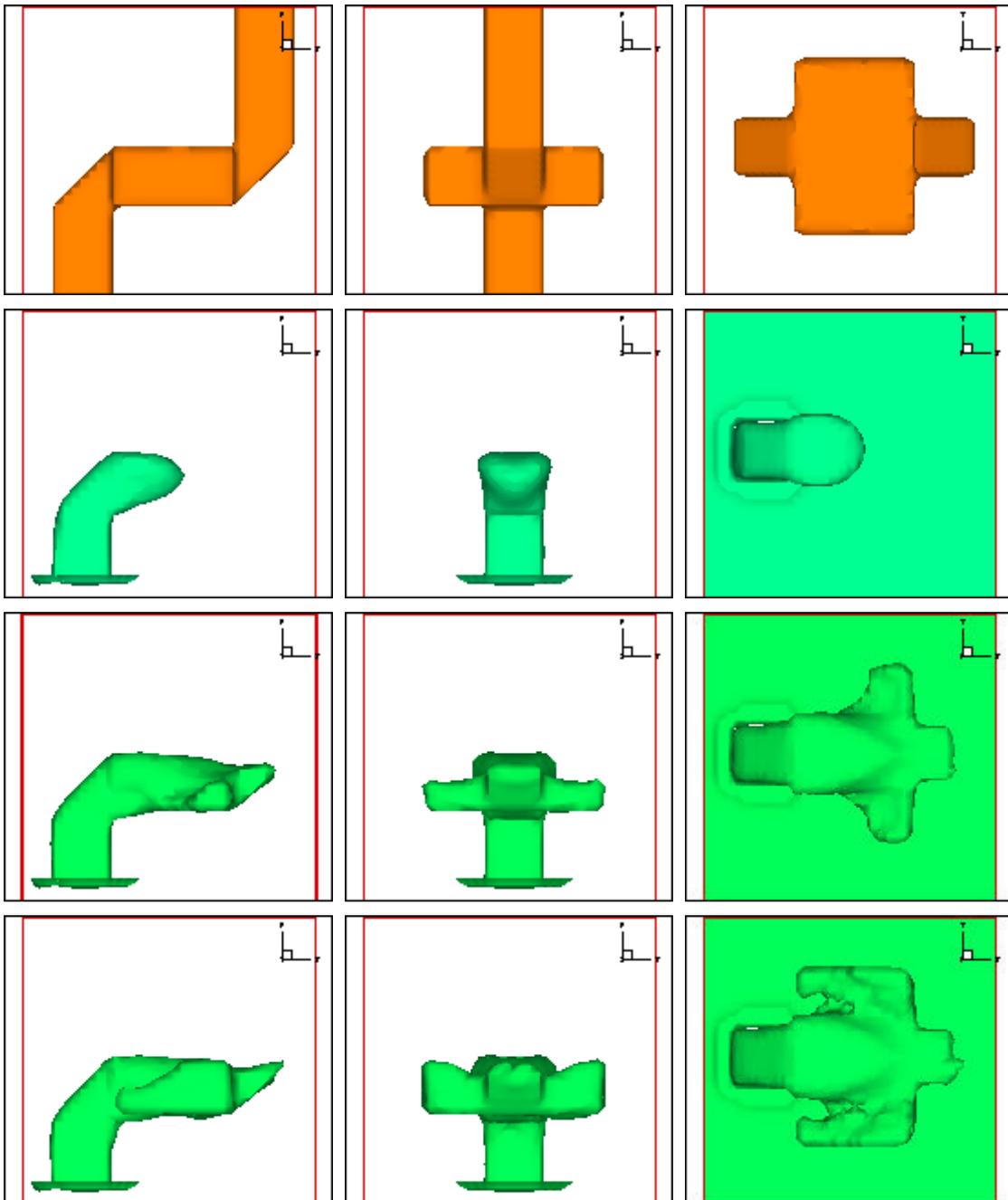


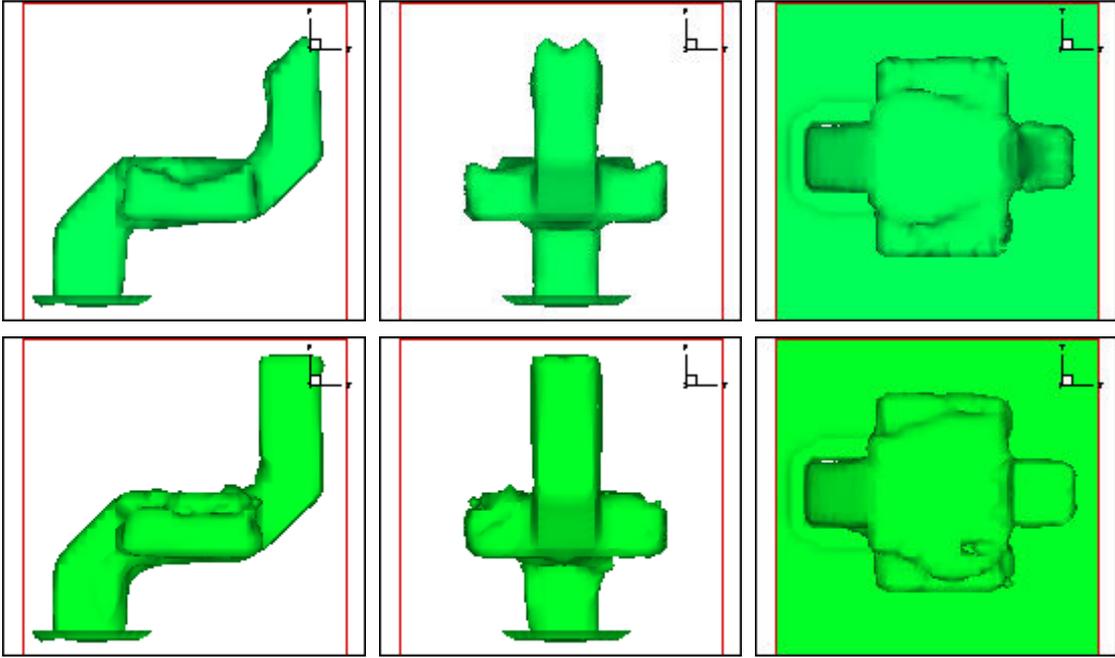






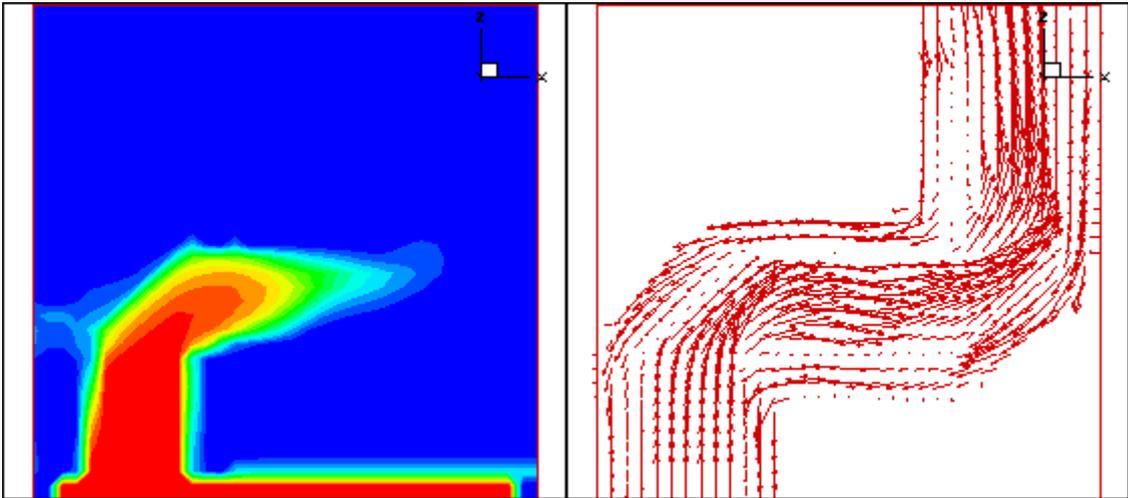
1. 水を鉄の鑄型に充填する。

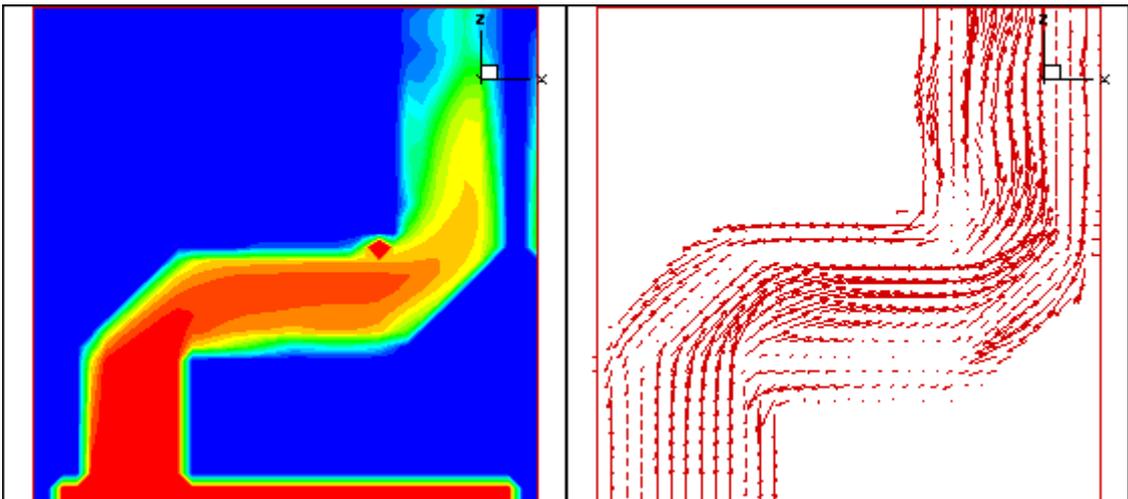
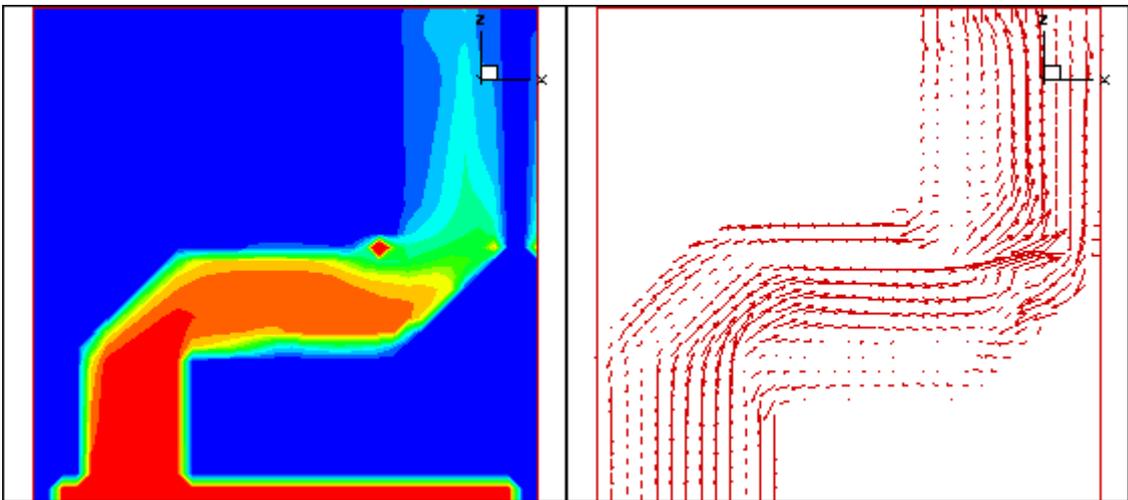
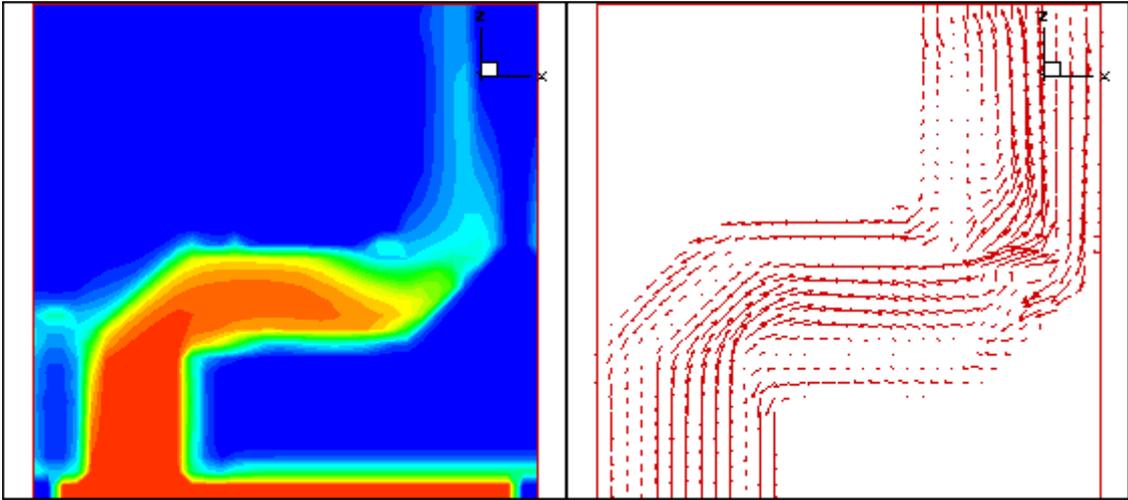


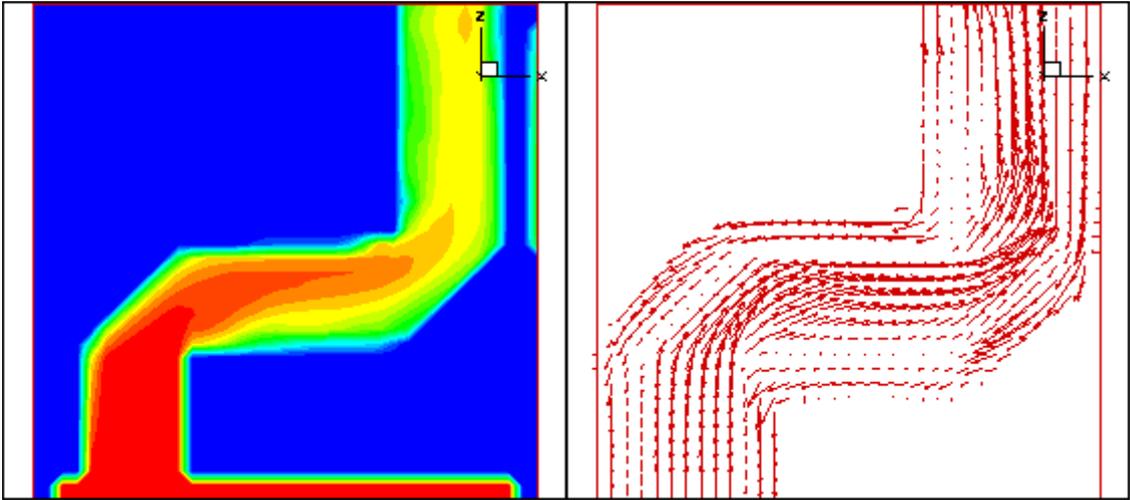


温度

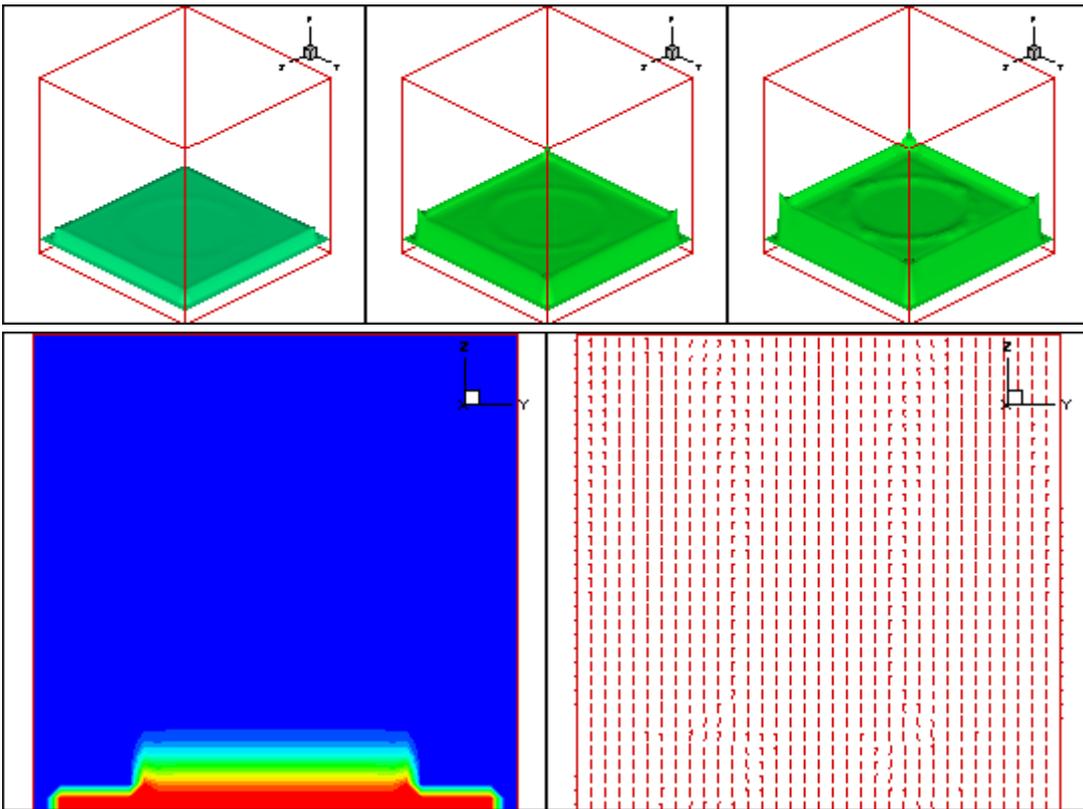
速度

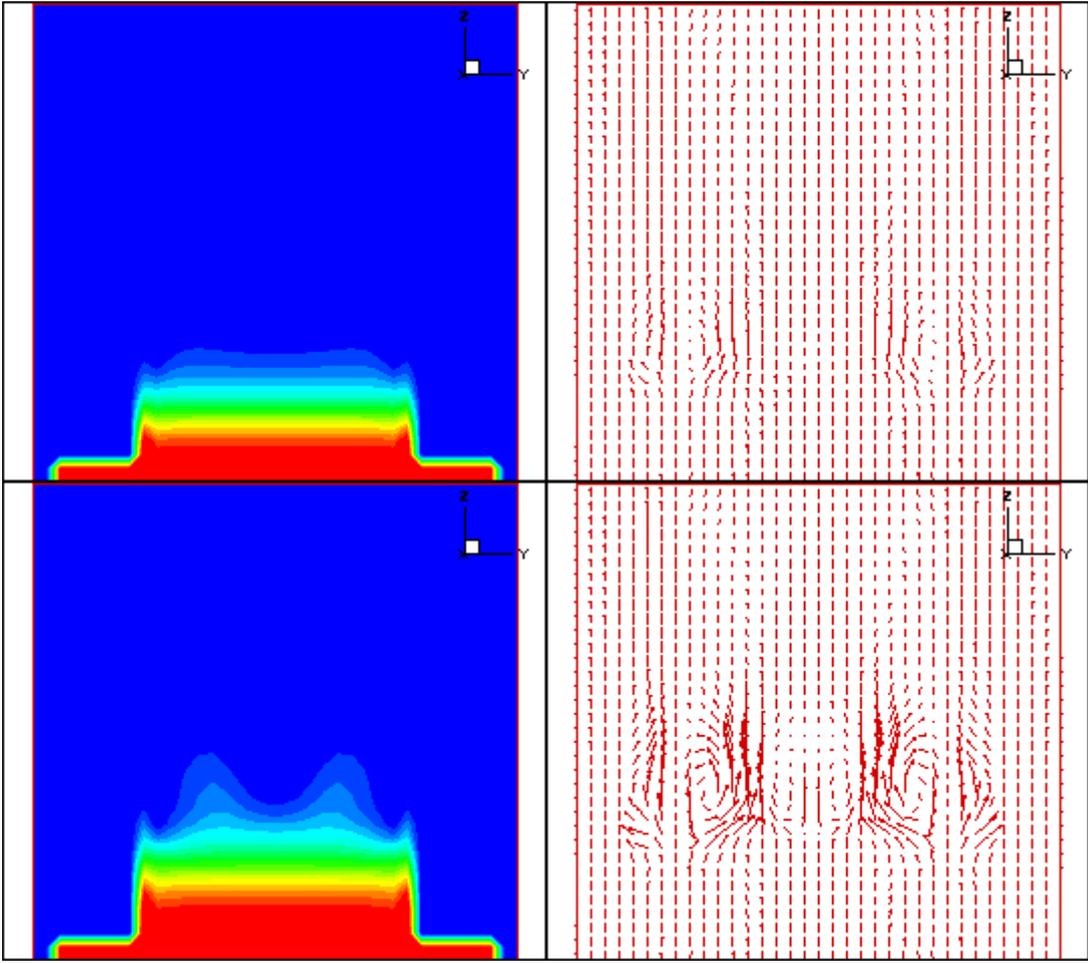




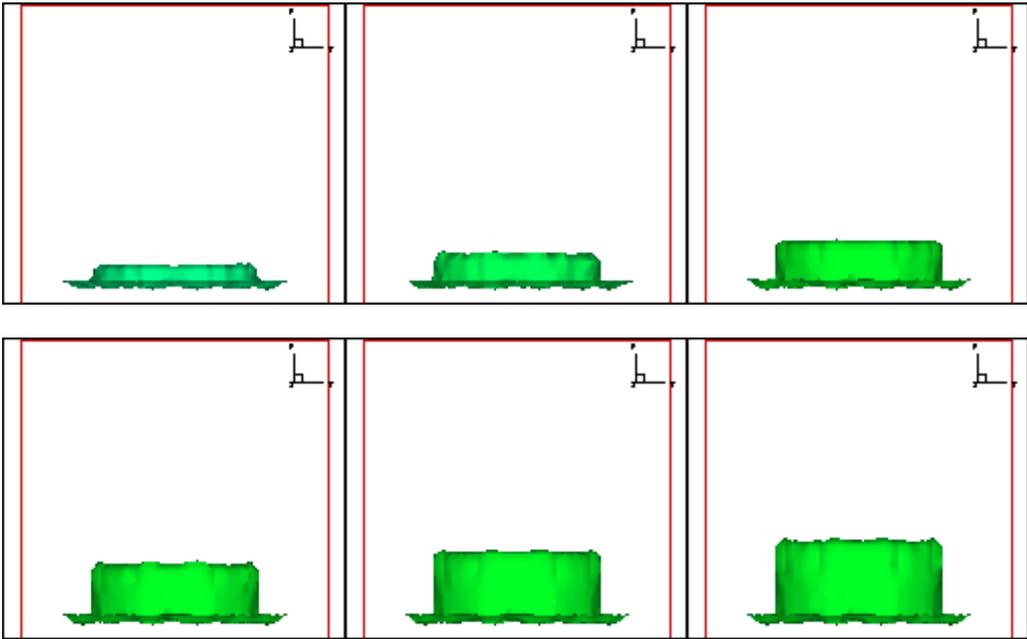


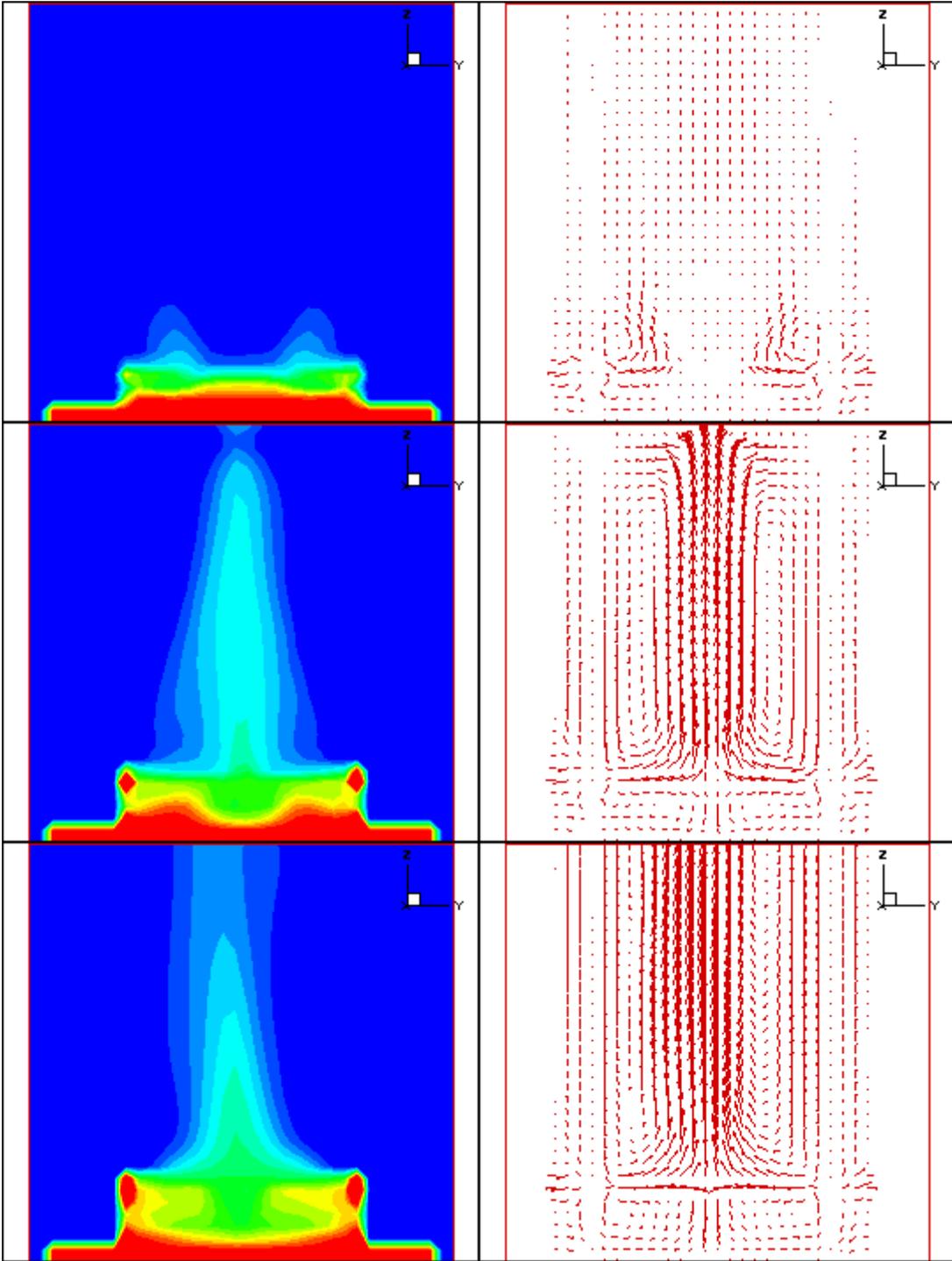
3. 水を断熱の円柱に充填する (grid velocity=-1 としたもの)

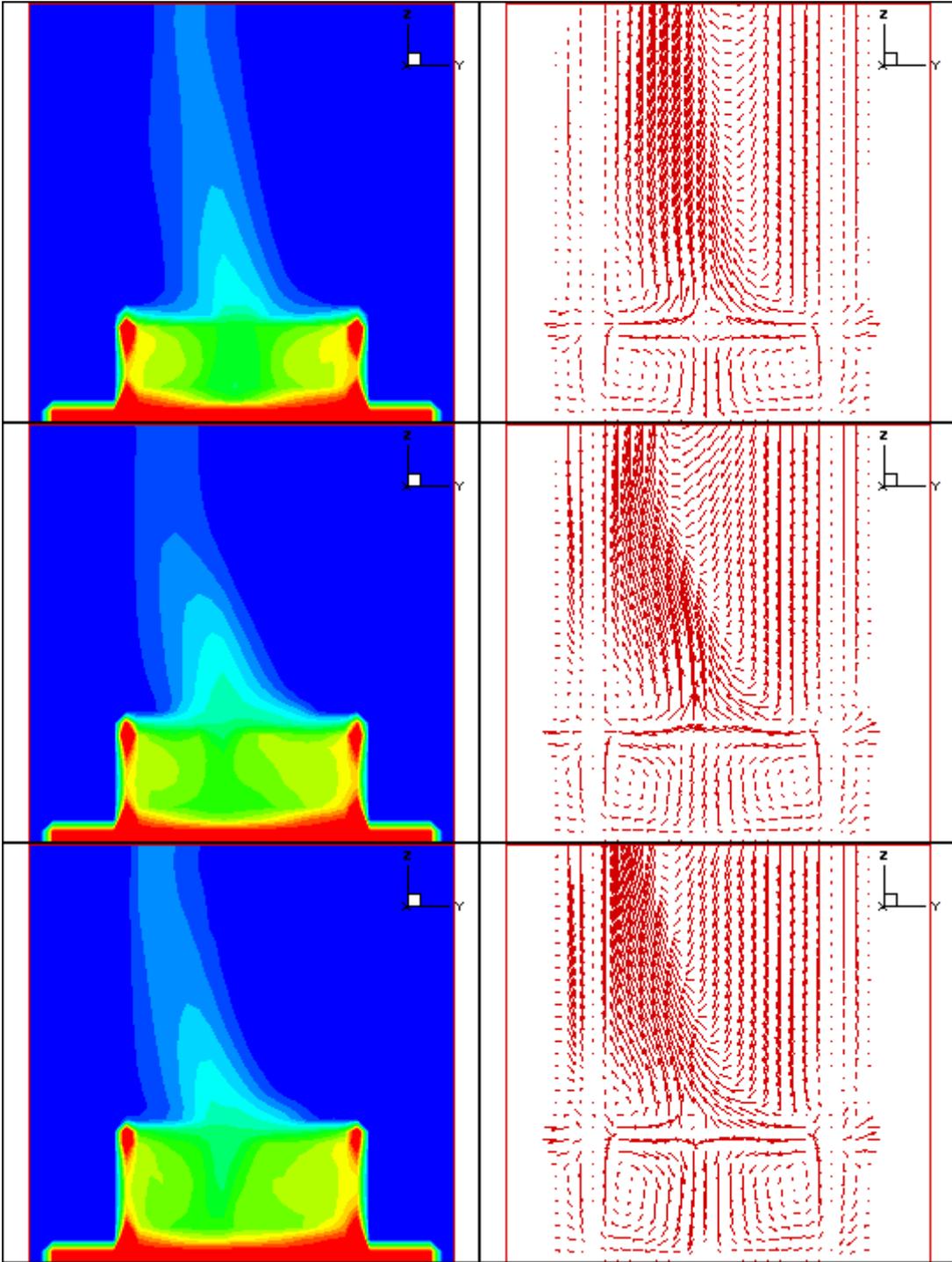




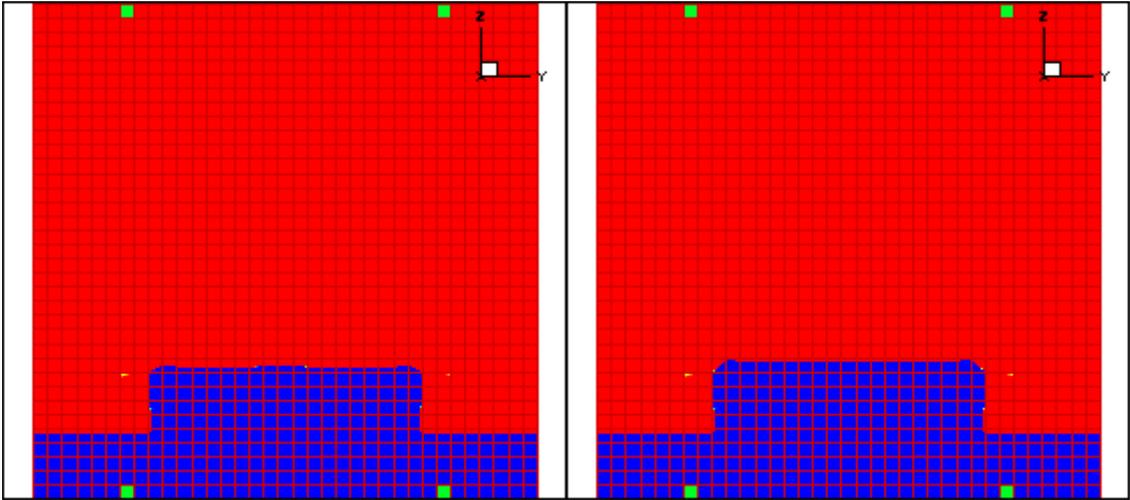
水を断熱の円柱に充填する (outflow 境界条件)





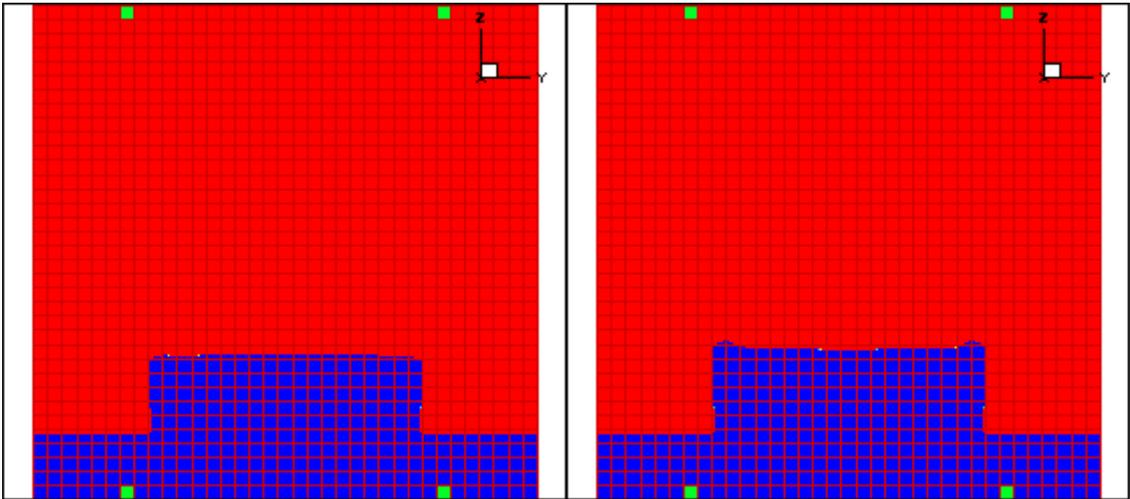


5000



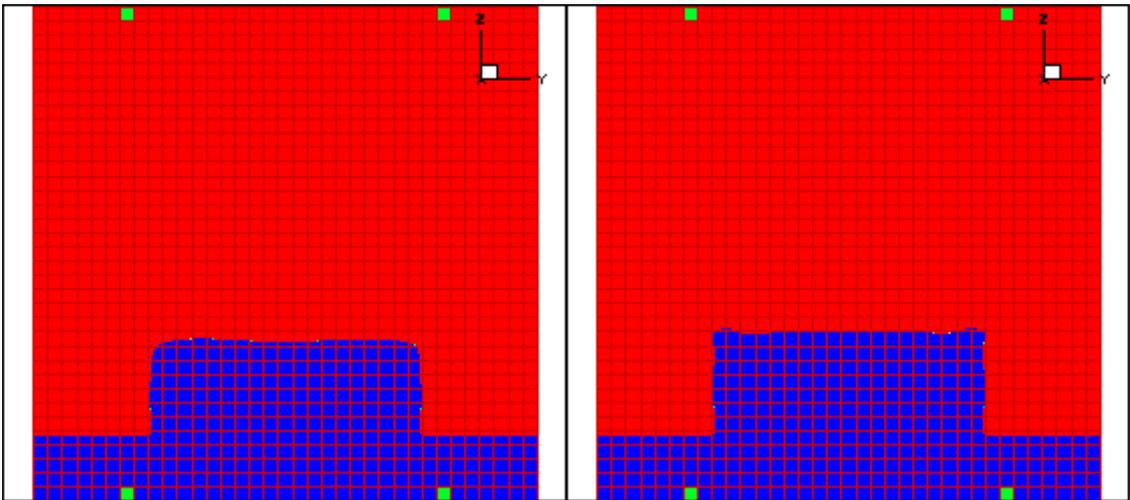
6000

6500



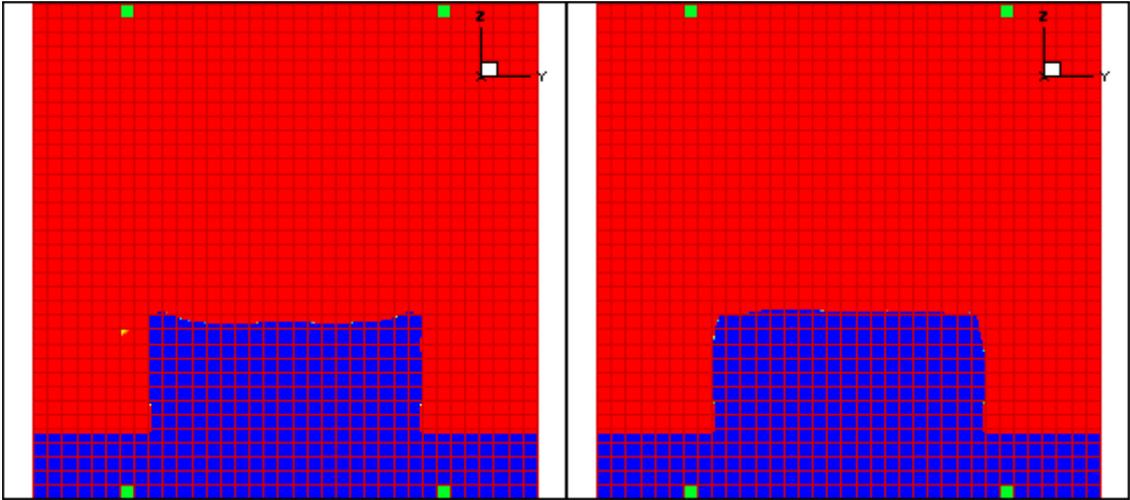
7000

7500



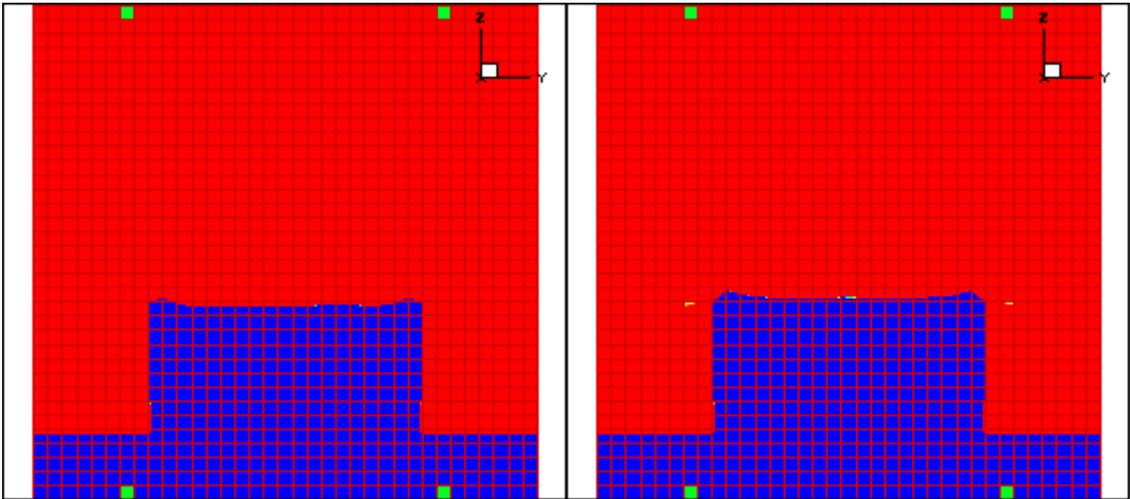
8000

8500



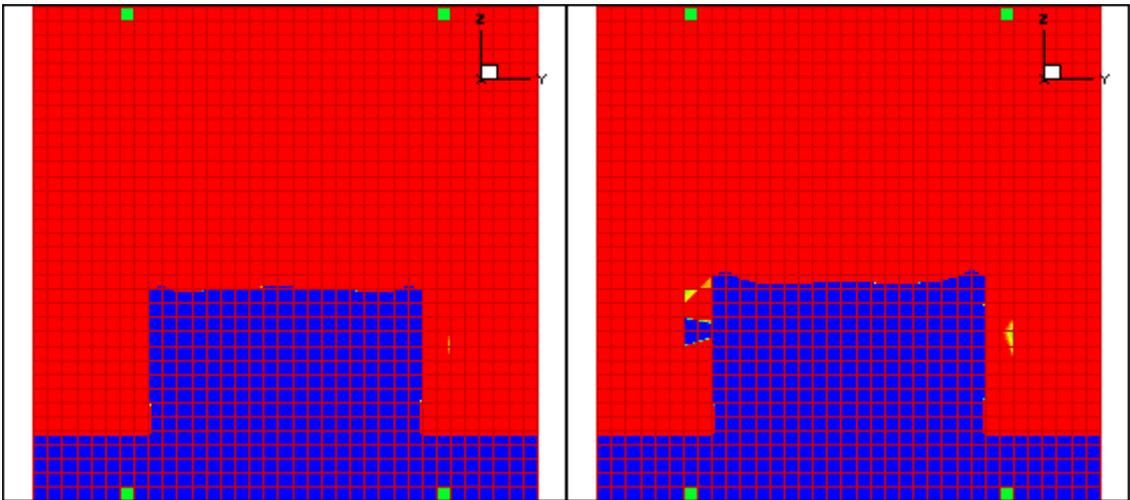
9000

9500



10000

10500



11000

11500