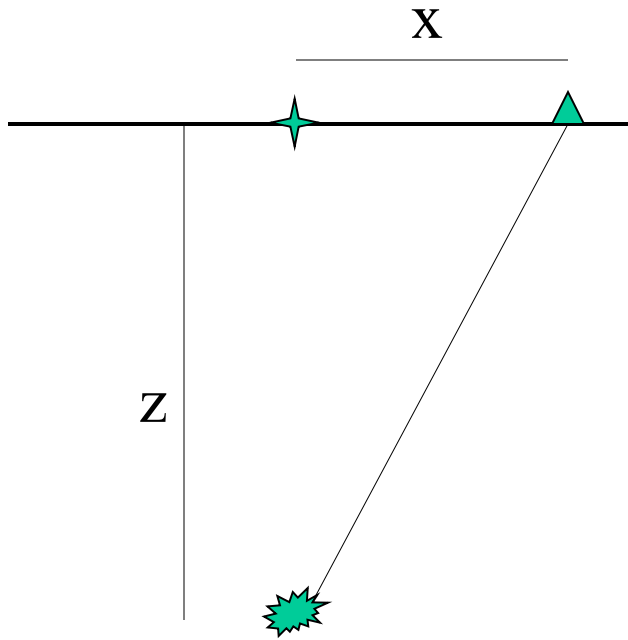
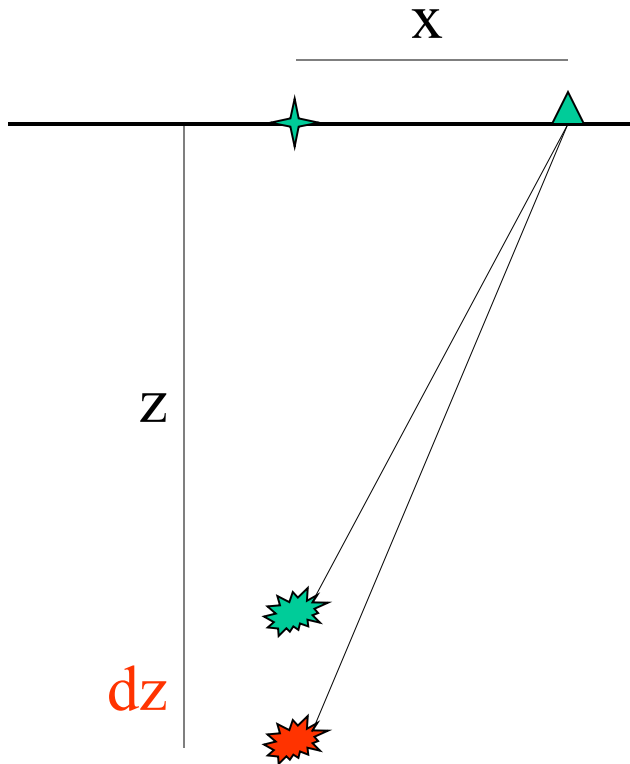


$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$



$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$

$$t' = t_0 + \text{sqrt}(x^2 + (z+dz)^2) / v_p$$

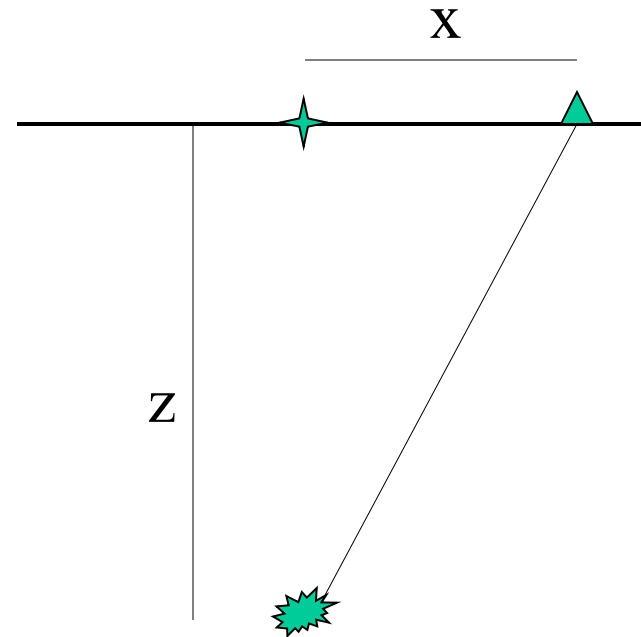
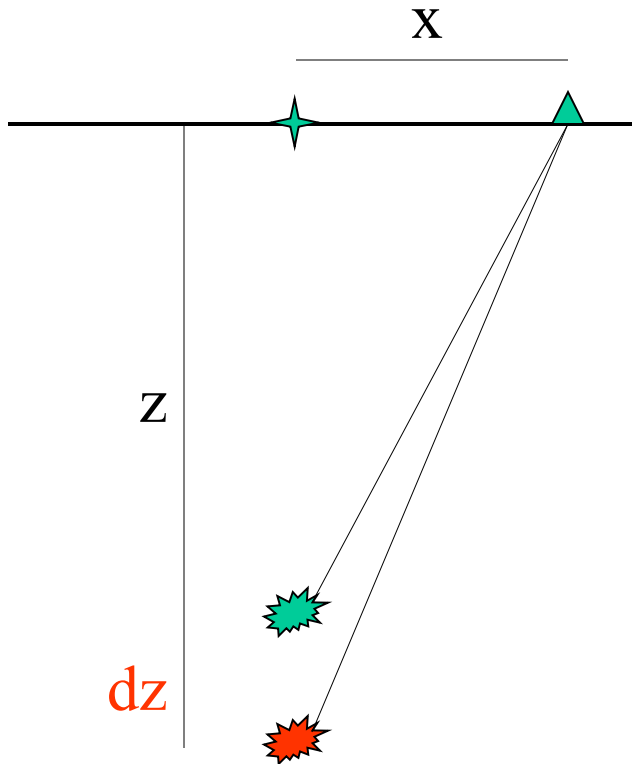


Change Hypocenter Depth

$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$

$$t' = t_0 + \text{sqrt}(x^2 + (z+dz)^2) / v_p$$

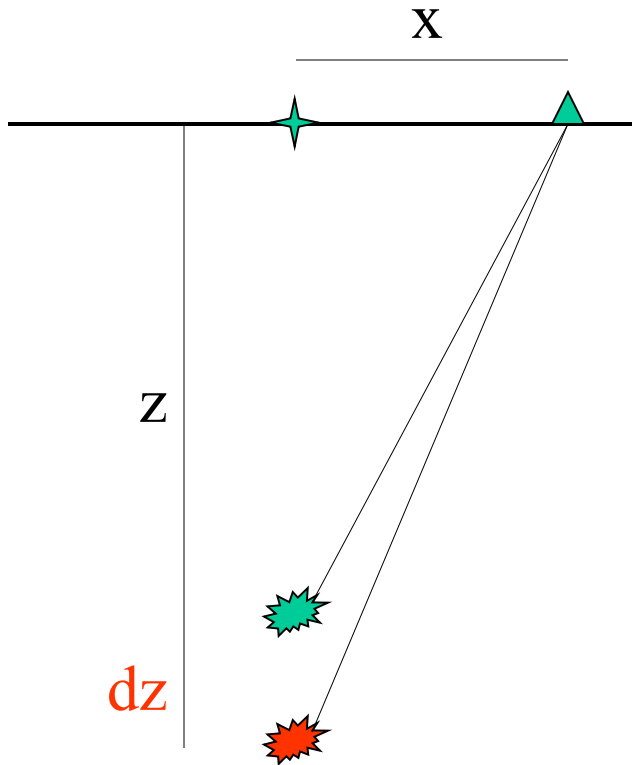
$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$



Change Hypocenter Depth

$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$

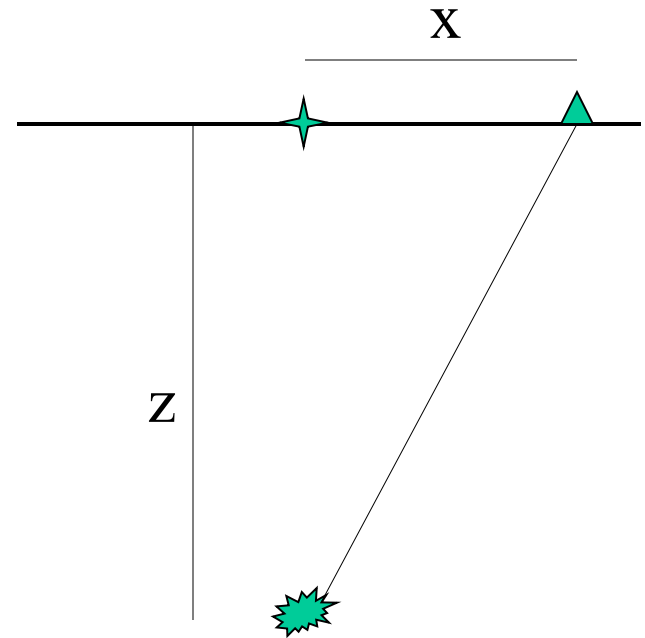
$$t' = t_0 + \text{sqrt}(x^2 + (z+dz)^2) / v_p$$



Change Hypocenter Depth

$$t = t_0 + \text{sqrt}(x^2 + z^2) / v_p$$

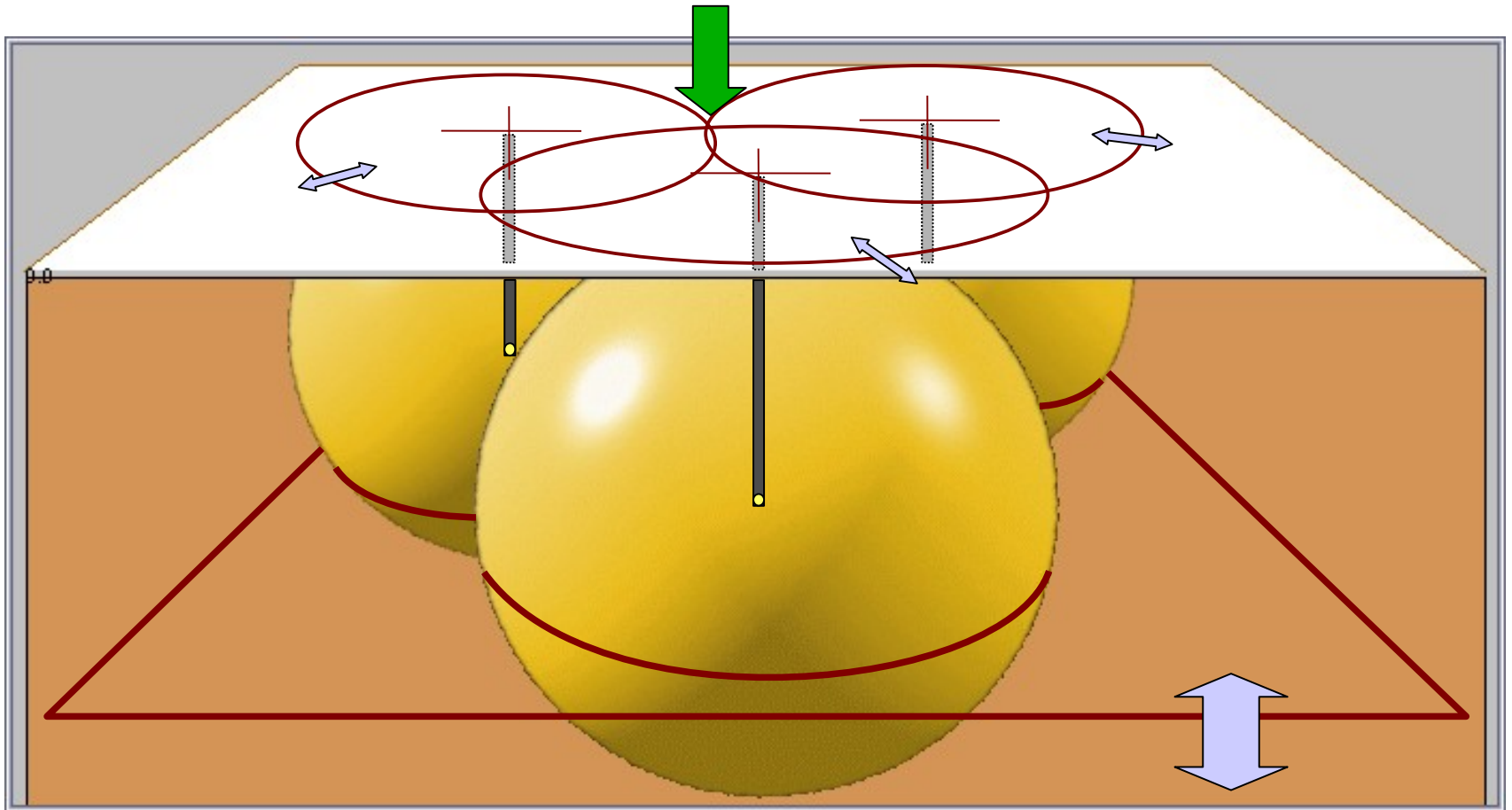
$$t' = t_0' + \text{sqrt}(x^2 + z^2) / v_p$$

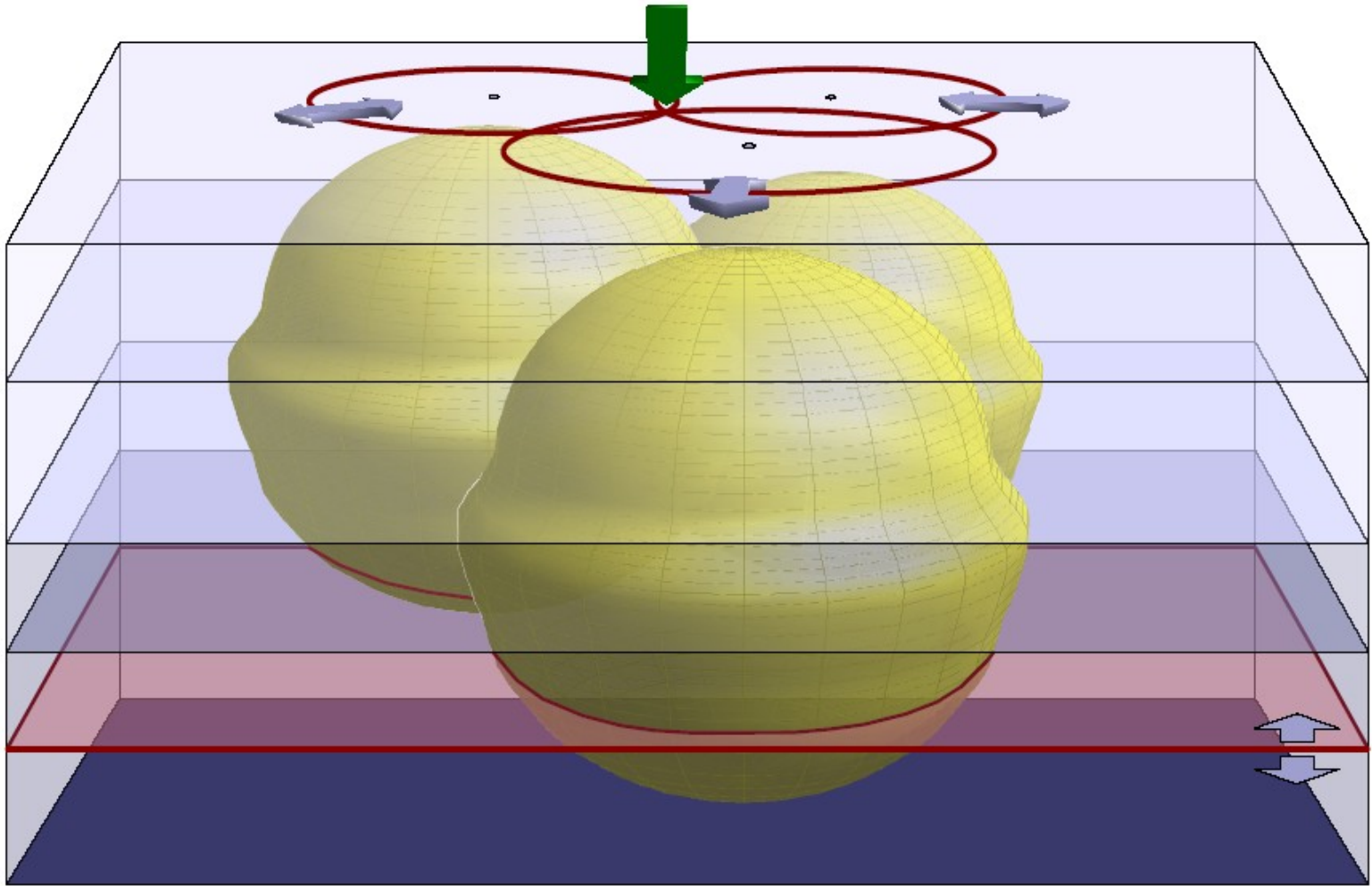


Change Origin Time

Methoden

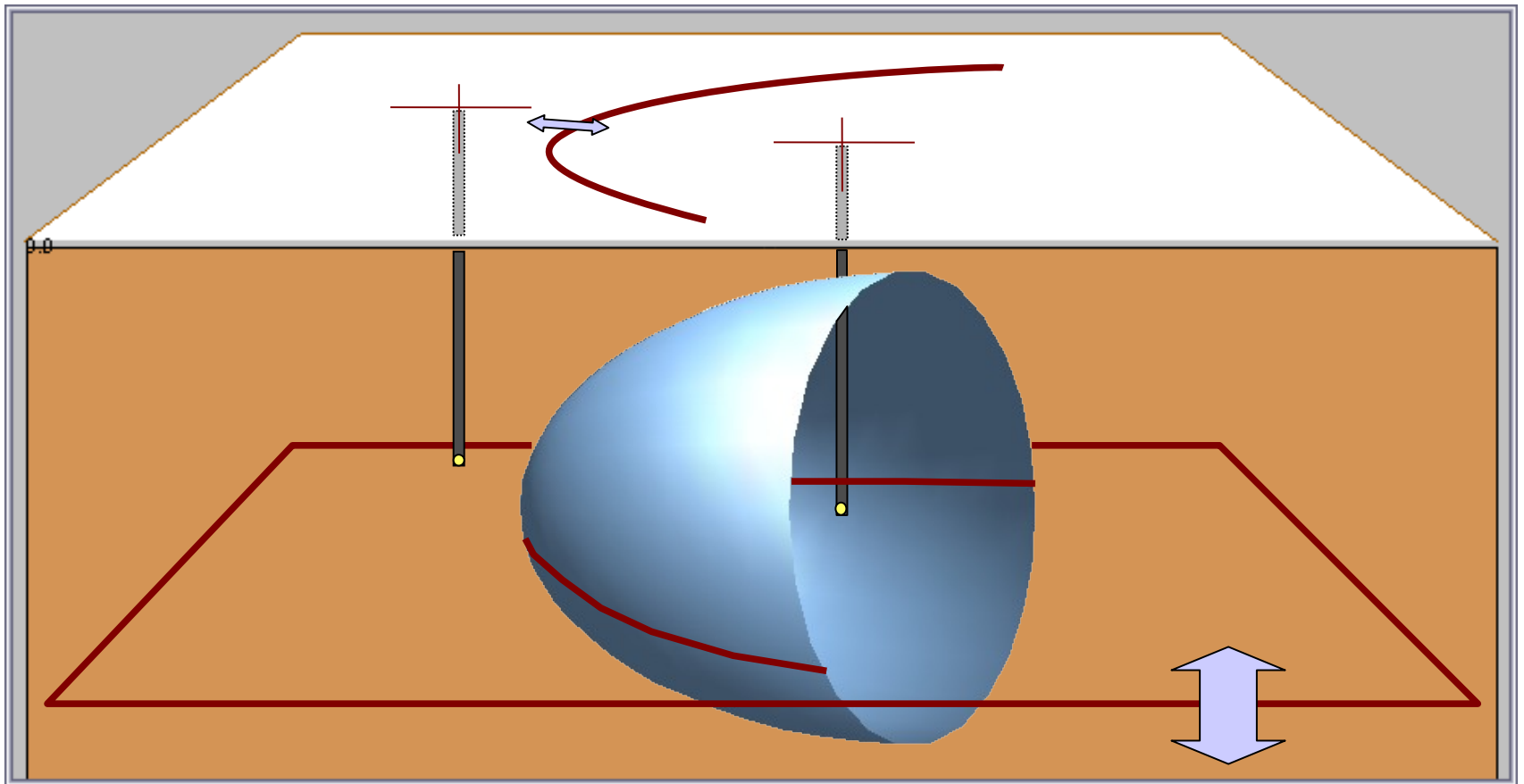
[Schnittkurven: Spherenchnitt]

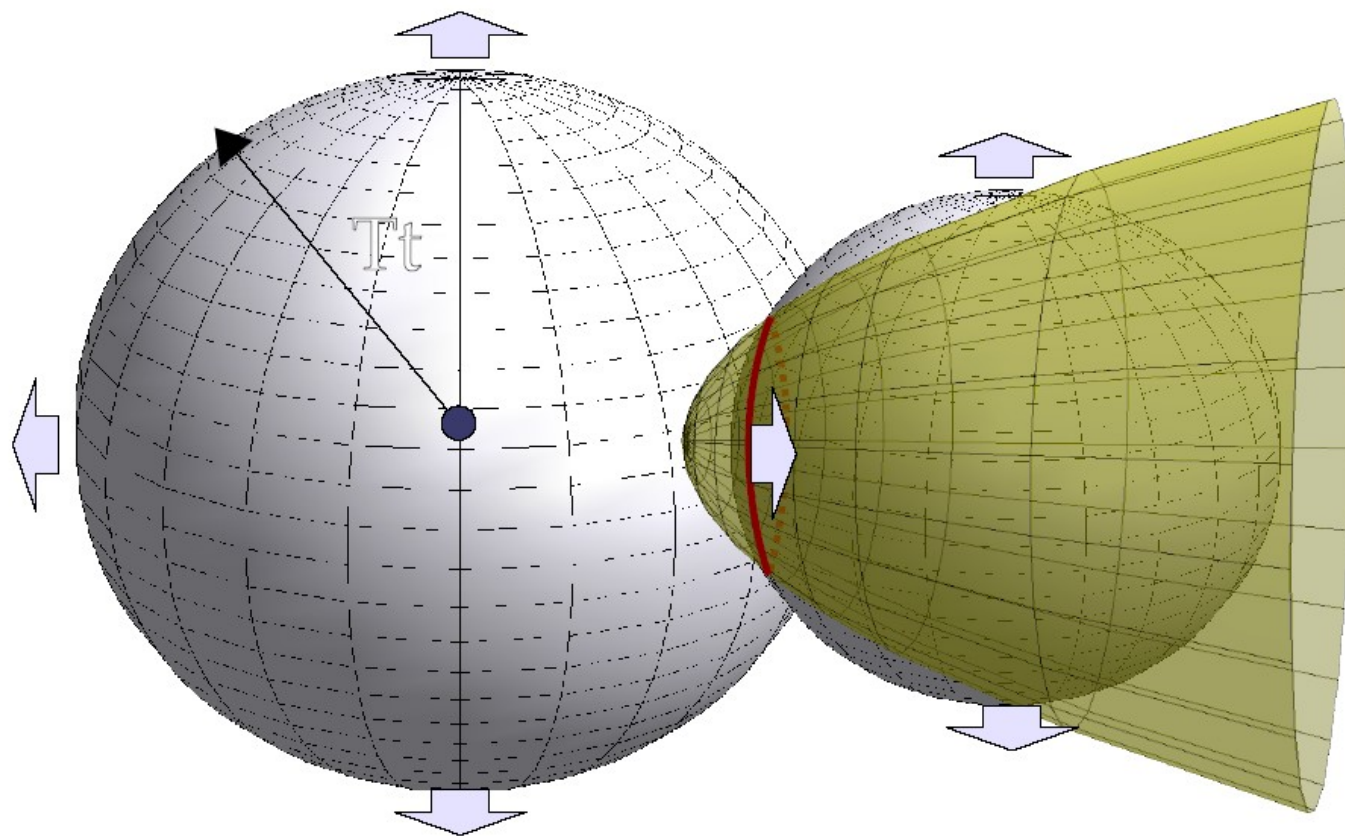


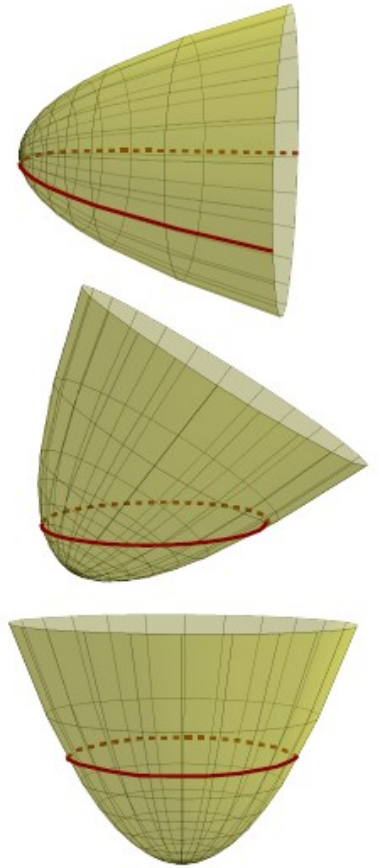
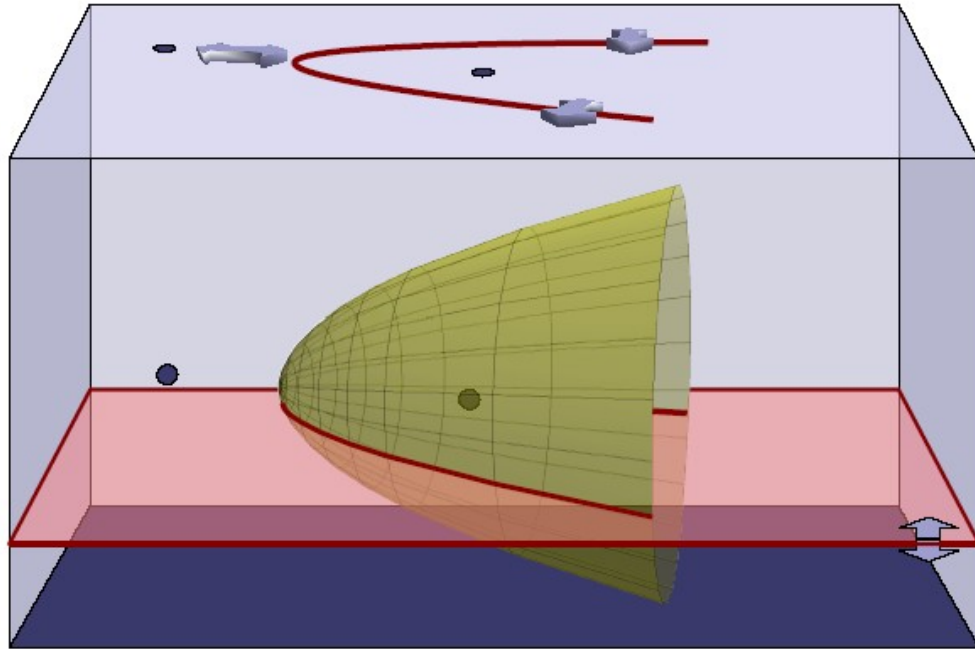


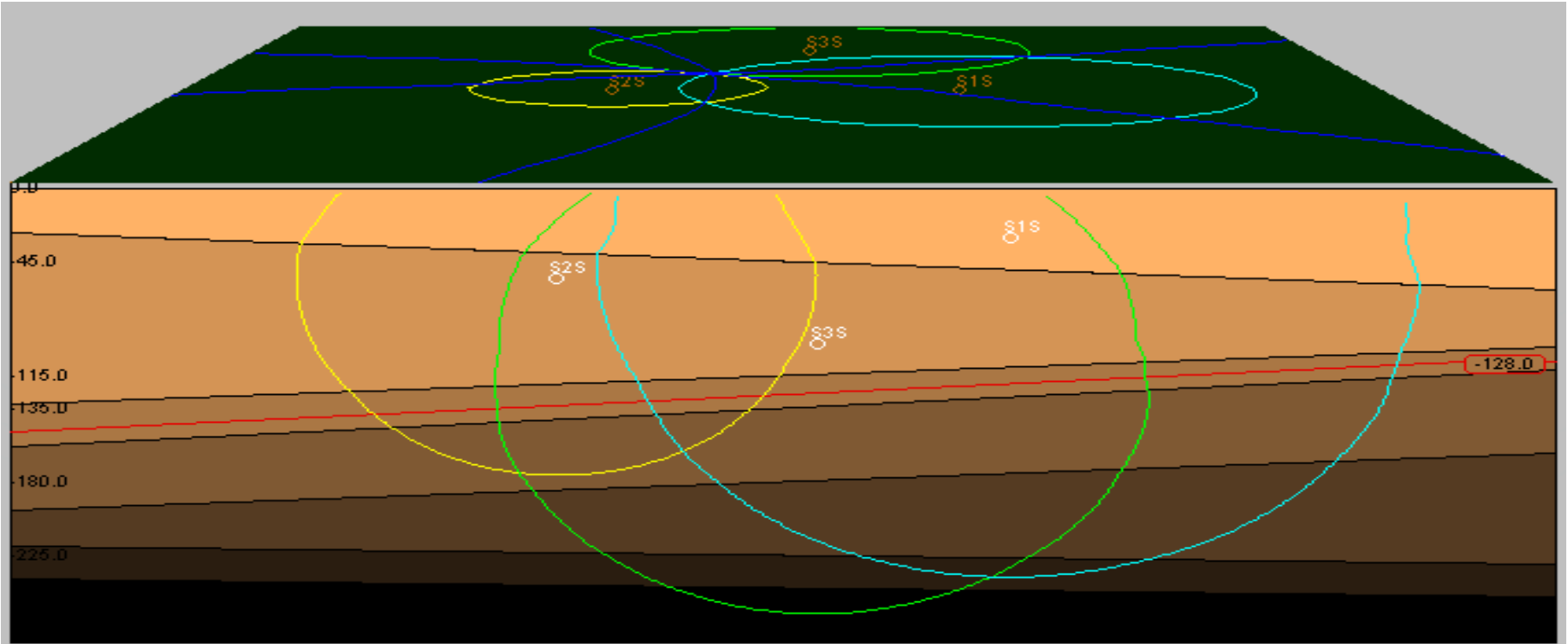
Methoden

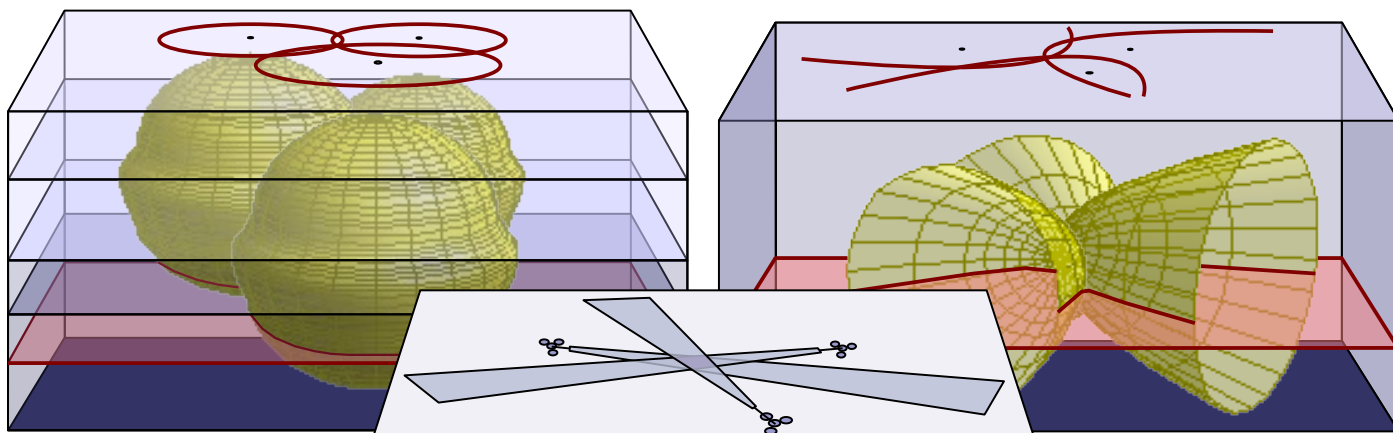
[HyperboloidSchnitt]







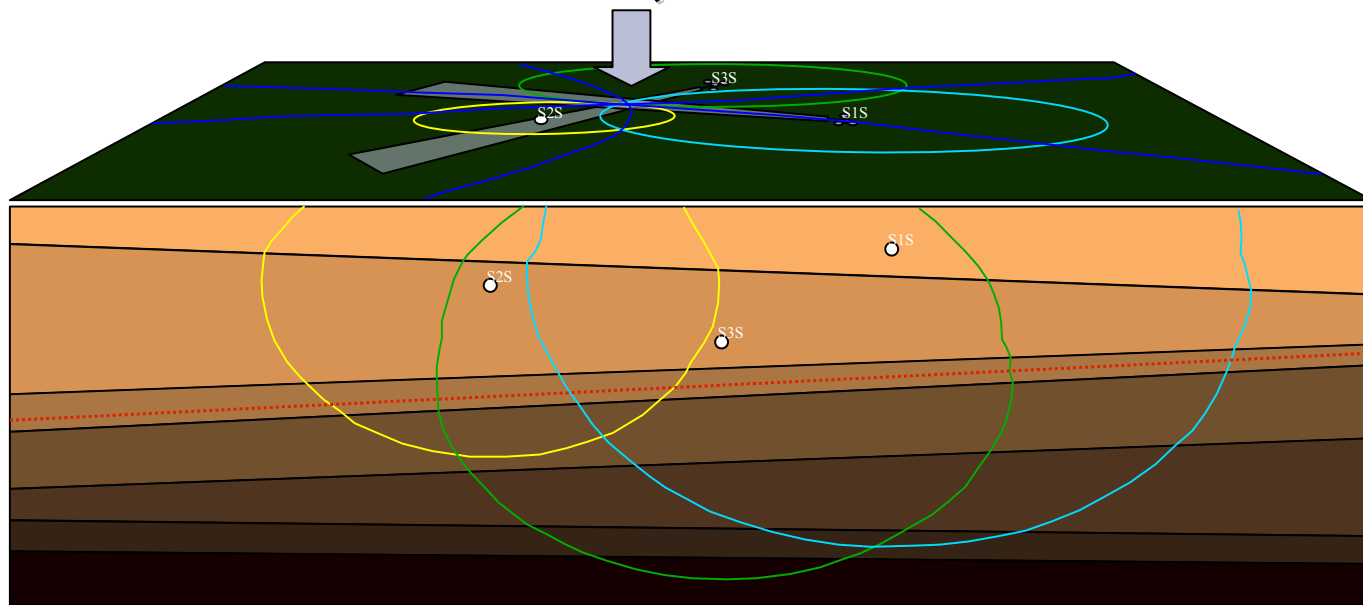


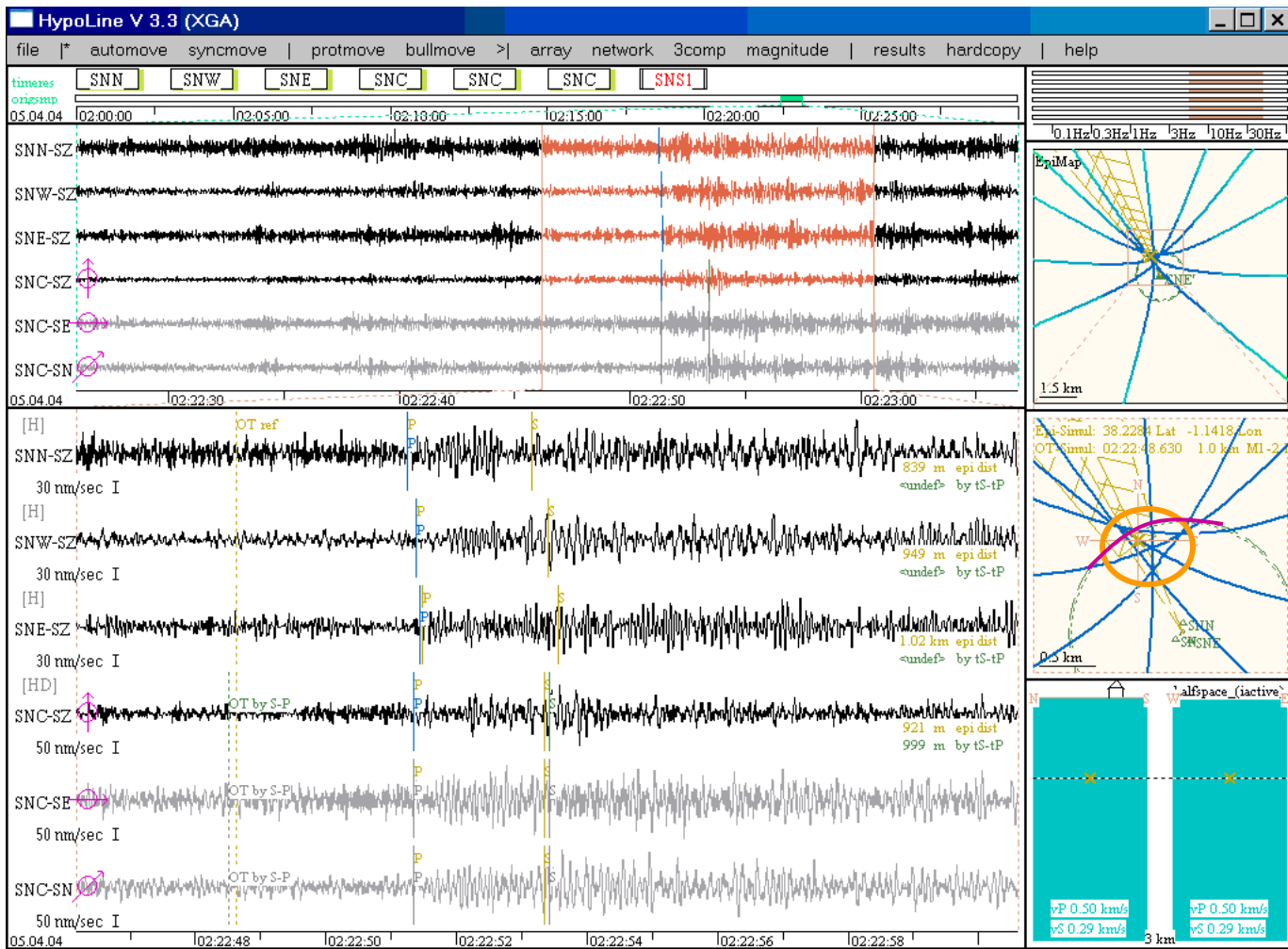


P_i-S_i -Onsets

Array beams

P_i-P_j -Onsets



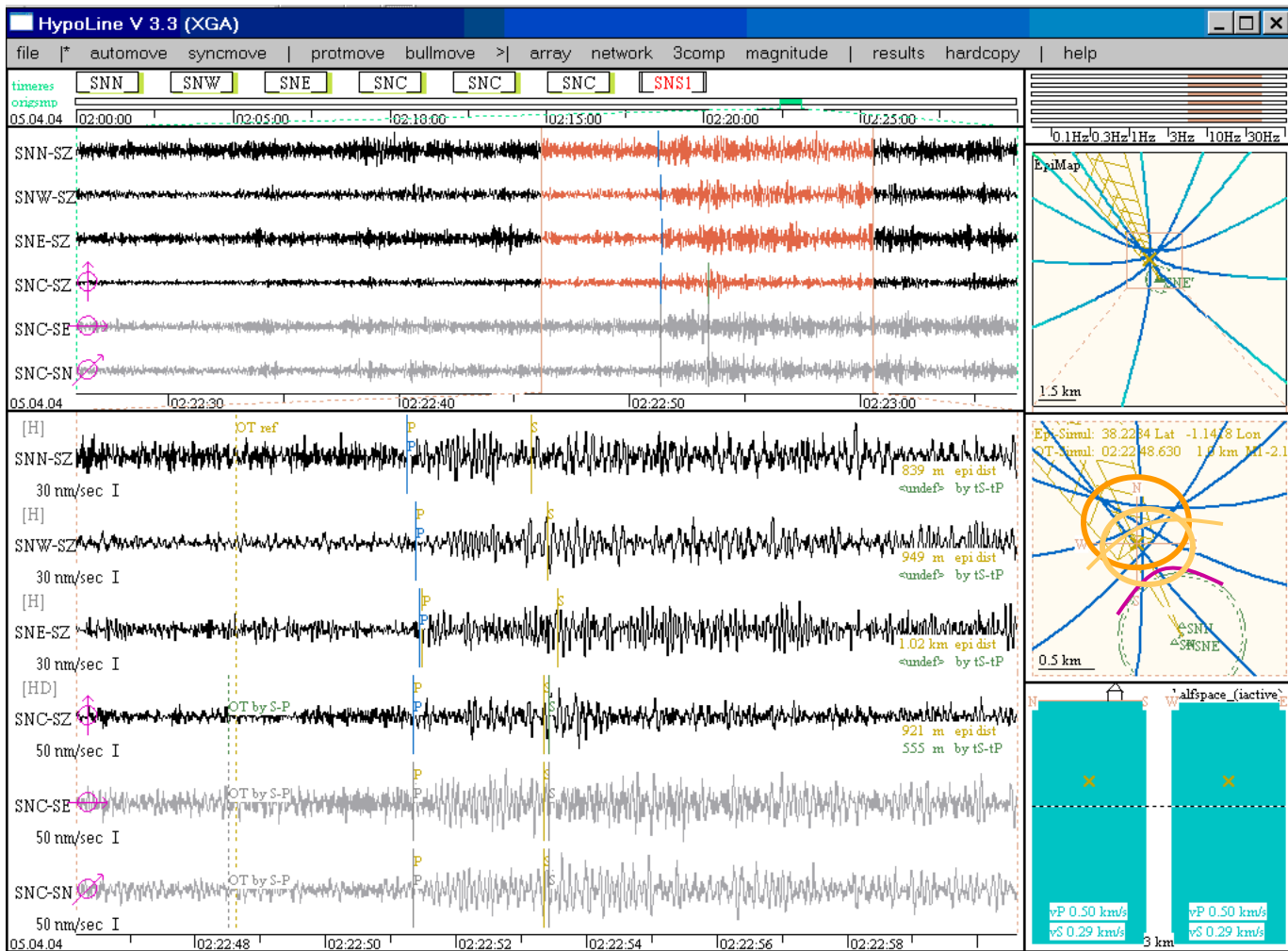


hyperbola
grow ↑

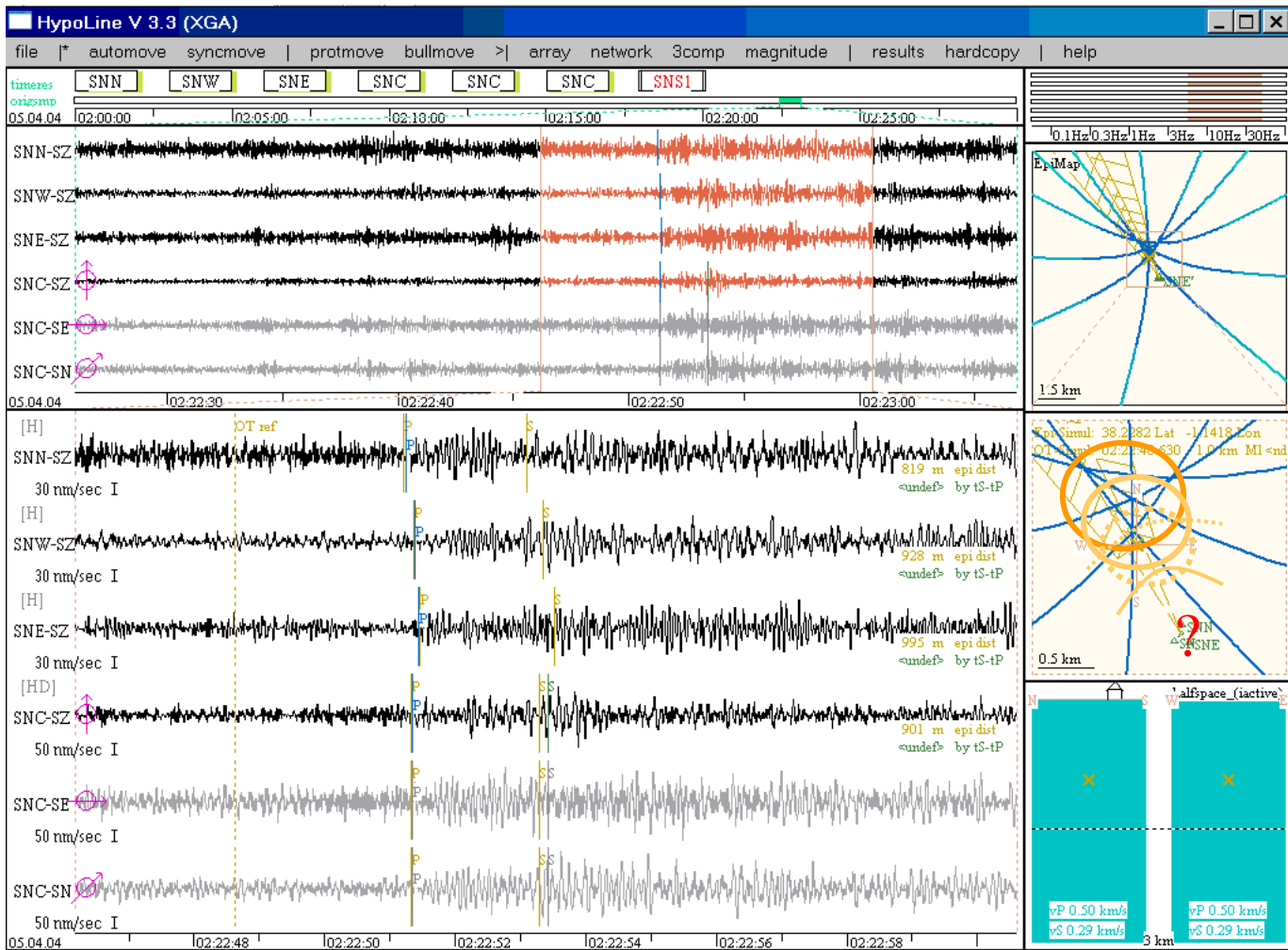
circles
shrink ↓

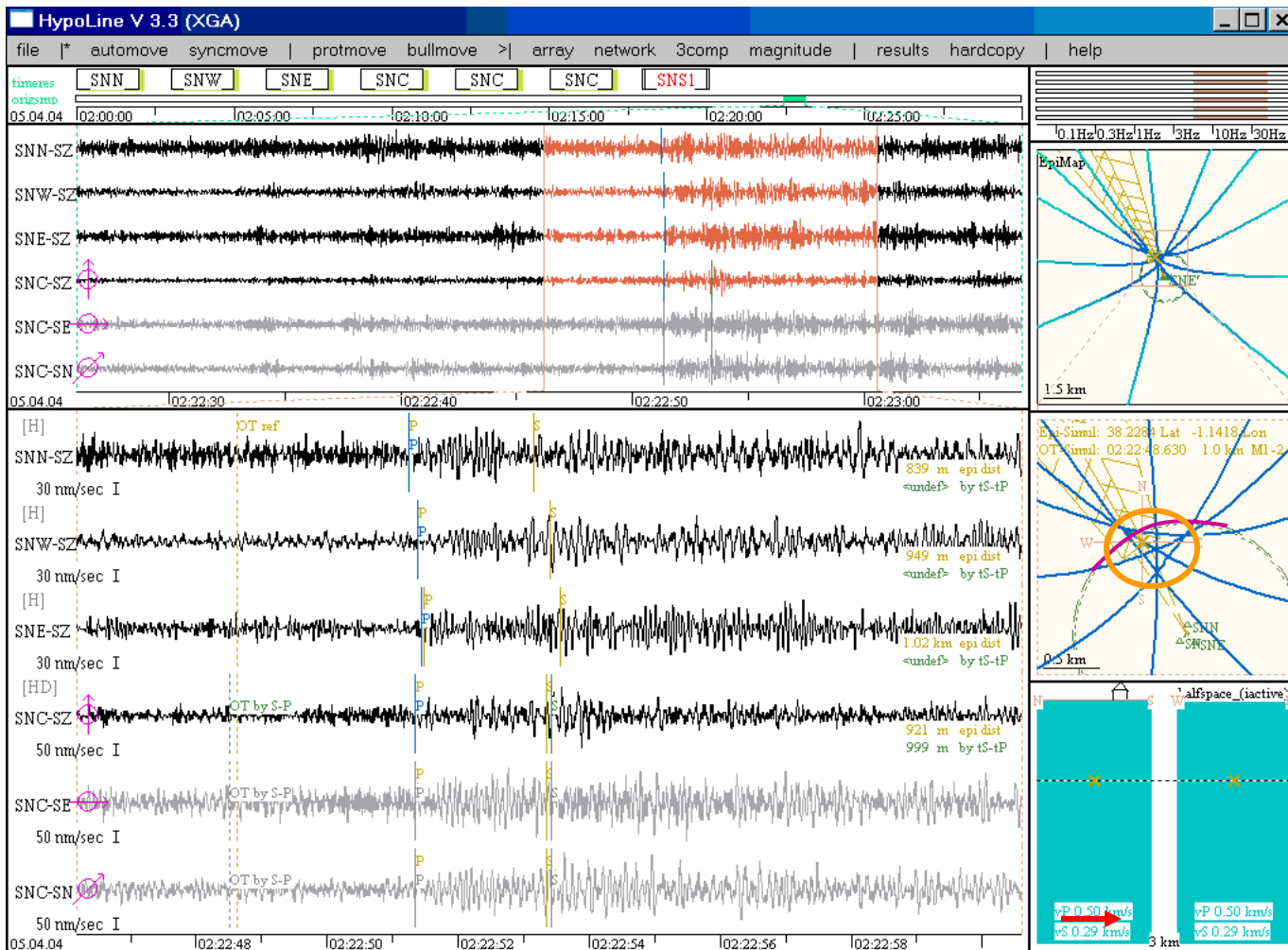
increase
depth ↓

Search Solution Space by Variation of Hypolines



increase depth





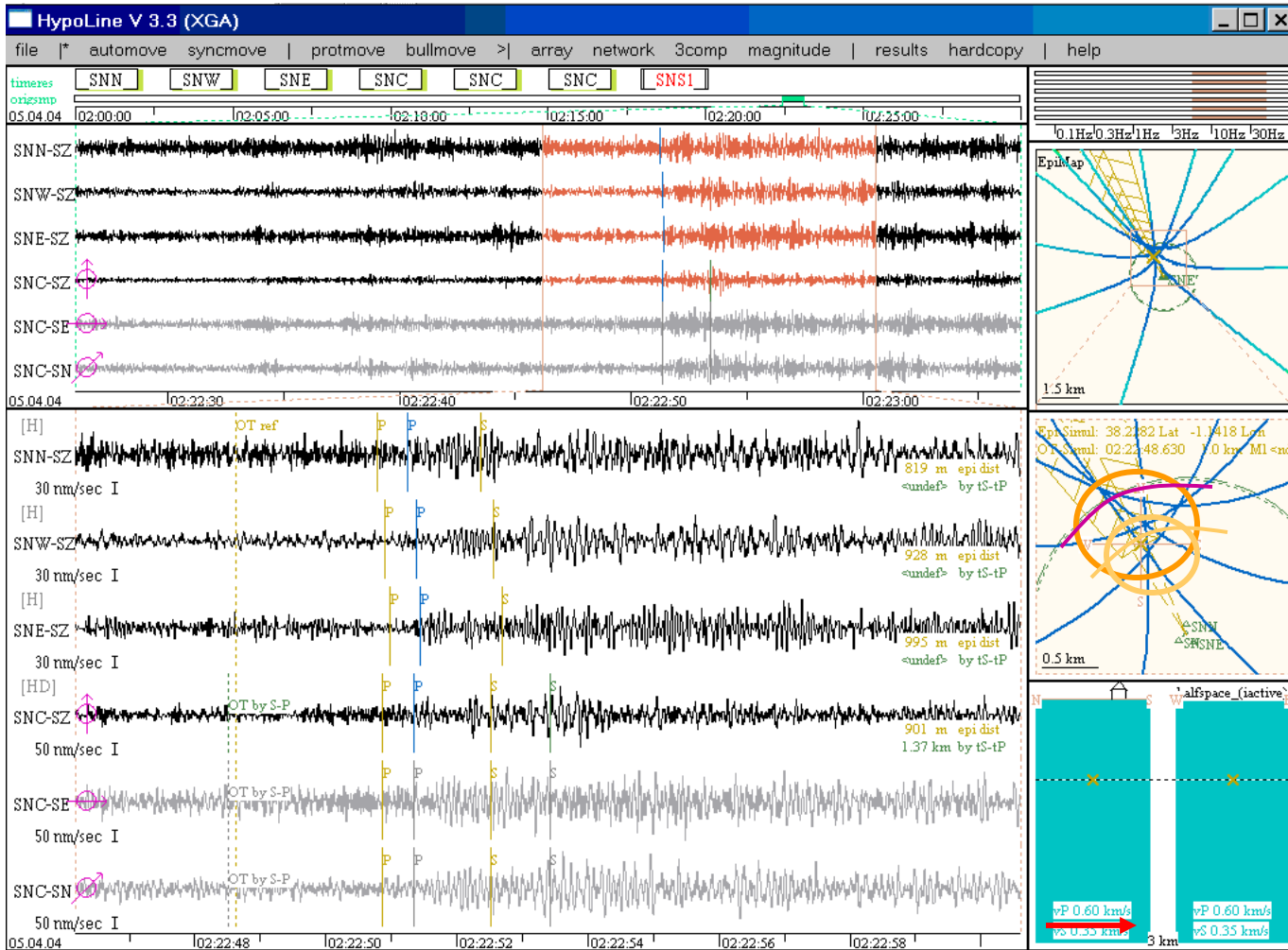
spread increases

hyperbola grow ↑

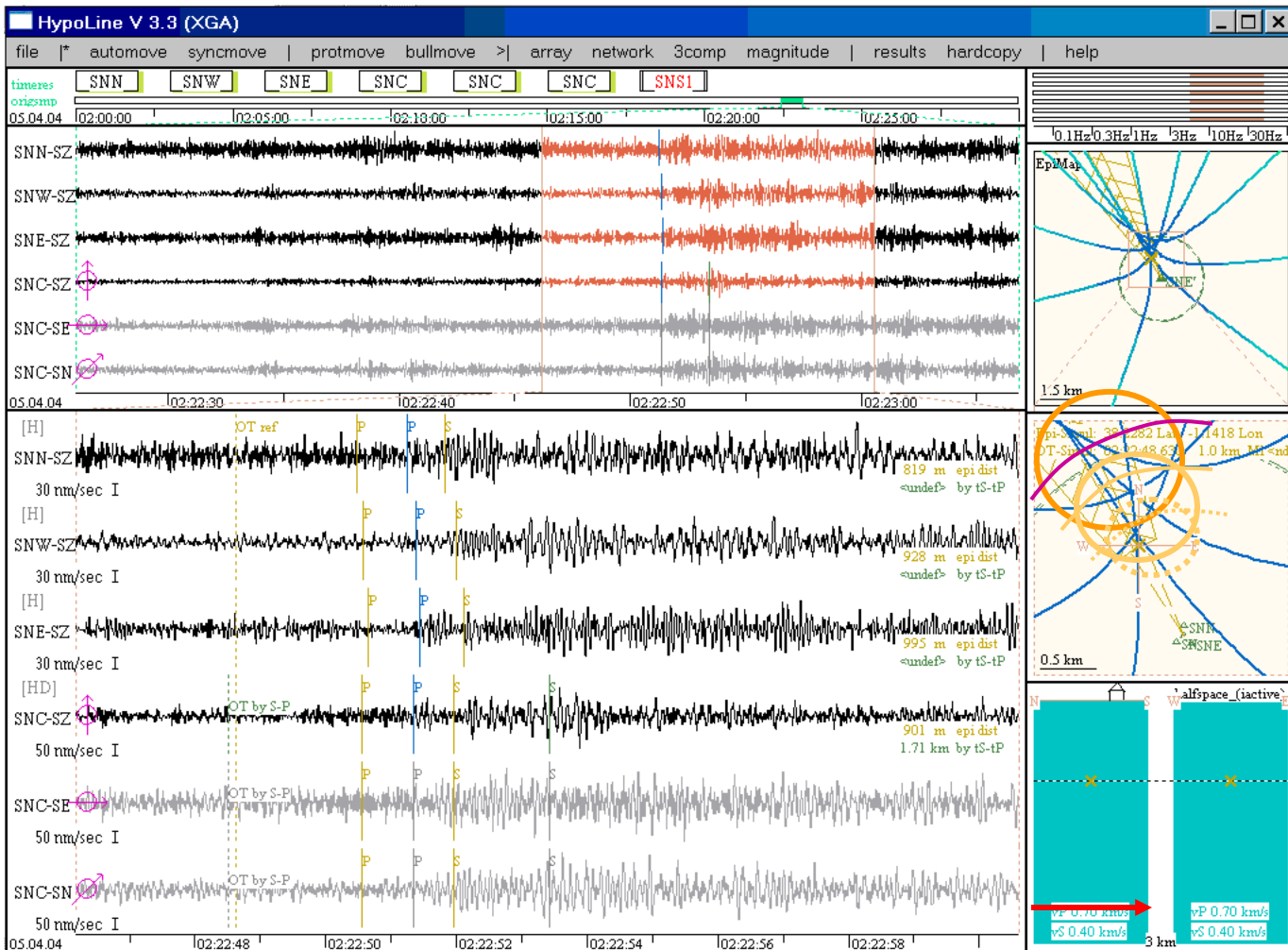
circles grow ↑

optimum depth ↓

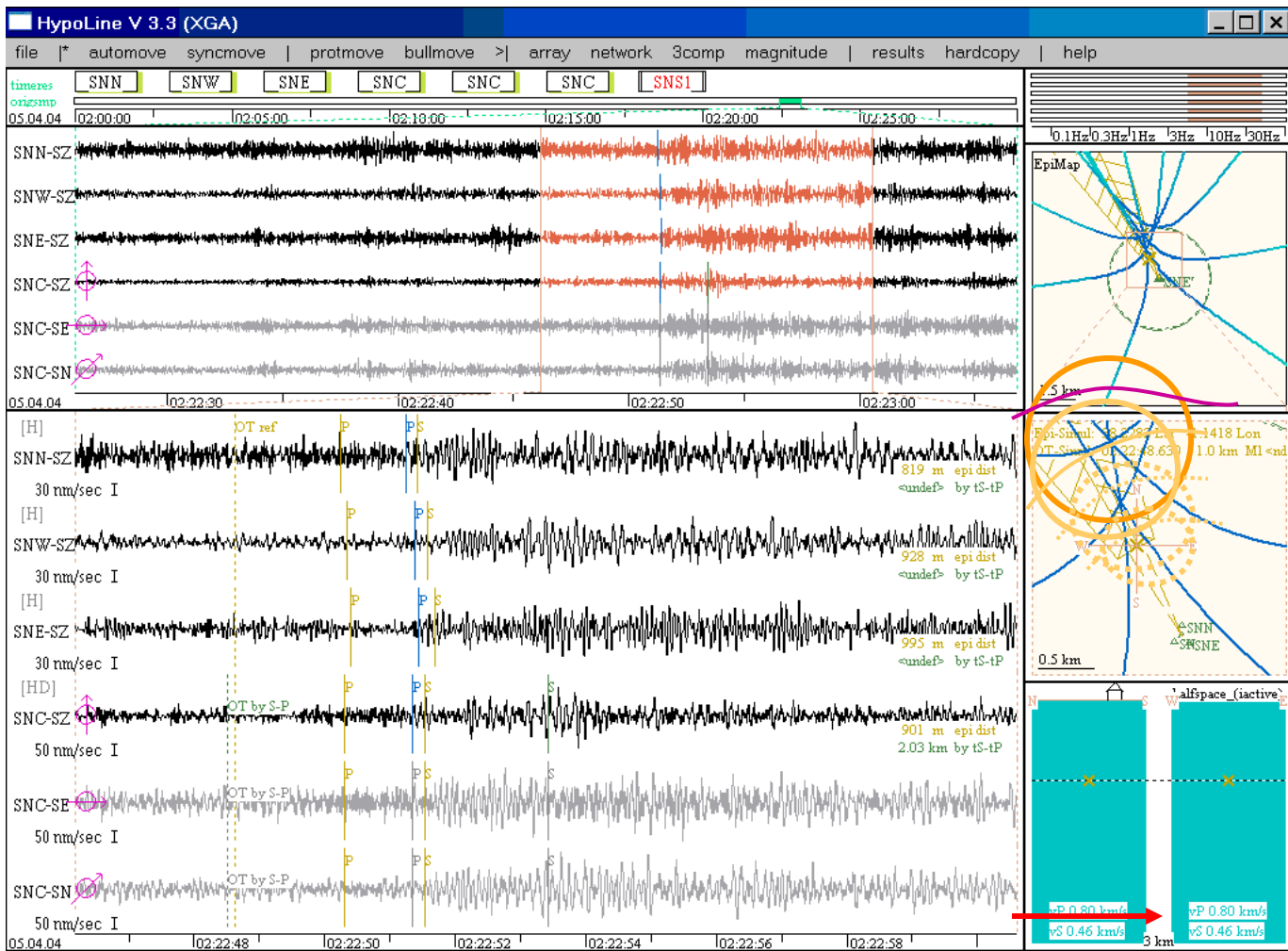
increase vP



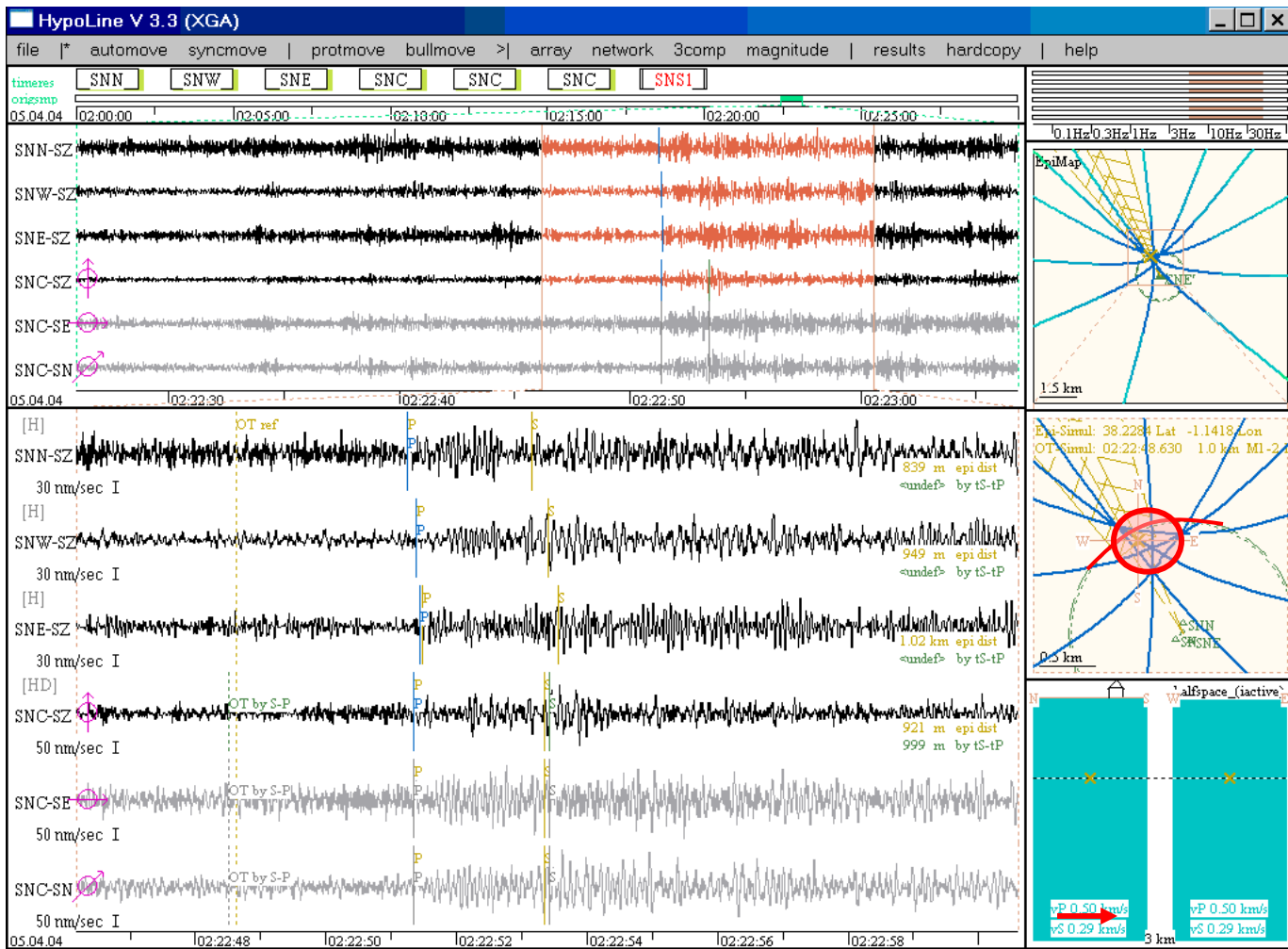
increase vP



increase vP



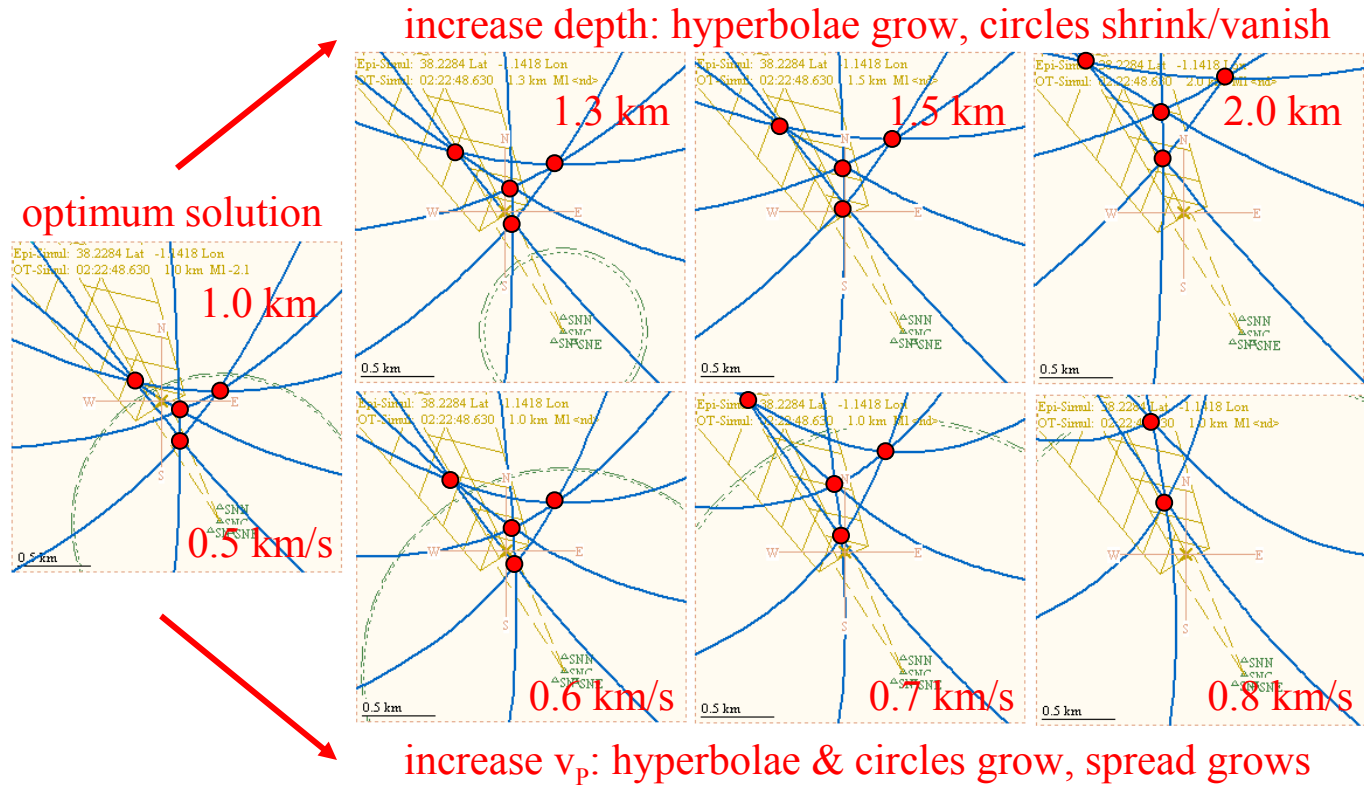
increase vP



minimum spread

optimum depth

optimum vP



N	3	4	5	6	7	8	9	10	11	12
H	3	6	10	15	21	28	36	45	55	66
T	1	4	10	20	35	56	84	120	165	220

Stations N , Hyperbolae H , and Triple Points T by Jackknife Analysis