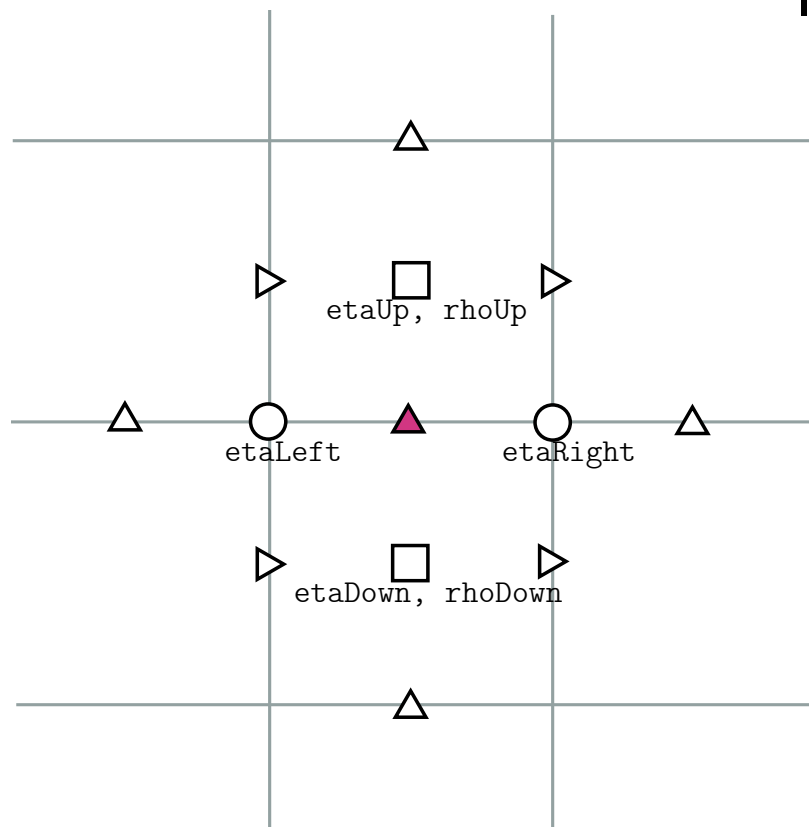


Iterate over elements  $(ex, ey)$  where bottom edge isn't on boundary:



```
DMStagStencil rhoPoint[2];
PetscScalar rho[2], valRhs;
DMStagStencil etaPoint[4];
PetscScalar eta[4], etaLeft, etaRight, etaUp, etaDown;

/* get rho values and compute rhs value*/
rhoPoint[0].i = ex; rhoPoint[0].j = ey; rhoPoint[0].loc = ELEMENT; rhoPoint[0].c = 1;
rhoPoint[1].i = ex; rhoPoint[1].j = ey-1; rhoPoint[1].loc = ELEMENT; rhoPoint[1].c = 1;
ierr = DMStagVecGetValuesStencil(ctx->dmCoeff, coeffLocal, 2, rhoPoint, rho); CHKERRQ(ierr);
valRhs = -ctx->gy * 0.5 * (rho[0] + rho[1]);

/* Get eta values */
etaPoint[0].i = ex; etaPoint[0].j = ey; etaPoint[0].loc = DOWN_LEFT; etaPoint[0].c = 0;
etaPoint[1].i = ex; etaPoint[1].j = ey; etaPoint[1].loc = DOWN_RIGHT; etaPoint[1].c = 0;
etaPoint[2].i = ex; etaPoint[2].j = ey+1; etaPoint[2].loc = ELEMENT; etaPoint[2].c = 0;
etaPoint[3].i = ex; etaPoint[3].j = ey-1; etaPoint[3].loc = ELEMENT; etaPoint[3].c = 0;
ierr = DMStagVecGetValuesStencil(ctx->dmCoeff, coeffLocal, 4, etaPoint, eta); CHKERRQ(ierr);
etaLeft = eta[0]; etaRight = eta[1]; etaUp = eta[2]; etaDown = eta[3];
```

(Use Computer Modern - this part cut off below)