multiphaseEulerFoam

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Contents

1 Near-wall heat transfer in theory

1.1 UEqn

```
    UEqns.set
    (
        phase.index(),
        new fvVectorMatrix
        (
            phase.UEqn()
            ==
            *momentumTransfer[phase.name()]
            + fvOptions(alpha, rho, U)
        )
    );
```

`phase.UEqn()` [1]

```
template<class BasePhaseModel>
Foam::tmp<Foam::fvVectorMatrix>
Foam::MovingPhaseModel<BasePhaseModel>::UEqn()
{
    const volScalarField& alpha = *this;
    const volScalarField& rho = this->thermo().rho();

    return
    (
        fvm::ddt(alpha, rho, U_)
      + fvm::div(alphaRhoPhi_, U_)
      + fvm::SuSp(-this->continuityError(), U_)
      + this->fluid().MRF().DDt(alpha*rho, U_)
      + turbulence_->divDevTau(U_)
    );
}
```

$$\frac{\partial \alpha^k \rho^k \mathbf{U}^k}{\partial t} + \nabla \cdot (\alpha^k \rho^k \phi^k \mathbf{U}^k) + SuSp(contErr, \mathbf{U}) + MRF(\alpha\rho\mathbf{U}) - \nabla \cdot \left[\alpha \rho \nu_{Eff} \left((\nabla \mathbf{U} + (\nabla \mathbf{U})^T) - \frac{2}{3} (\nabla \cdot \mathbf{U}) \mathbf{I} \right) \right] \tag{1}$$

References

[1] defined in
`applications\solvers \multiphase \multiphaseEulerFoam \phaseSystems \phaseModel \MovingPhaseModel \MovingPhaseModel .C`