

Práctica 1

Codo 2D

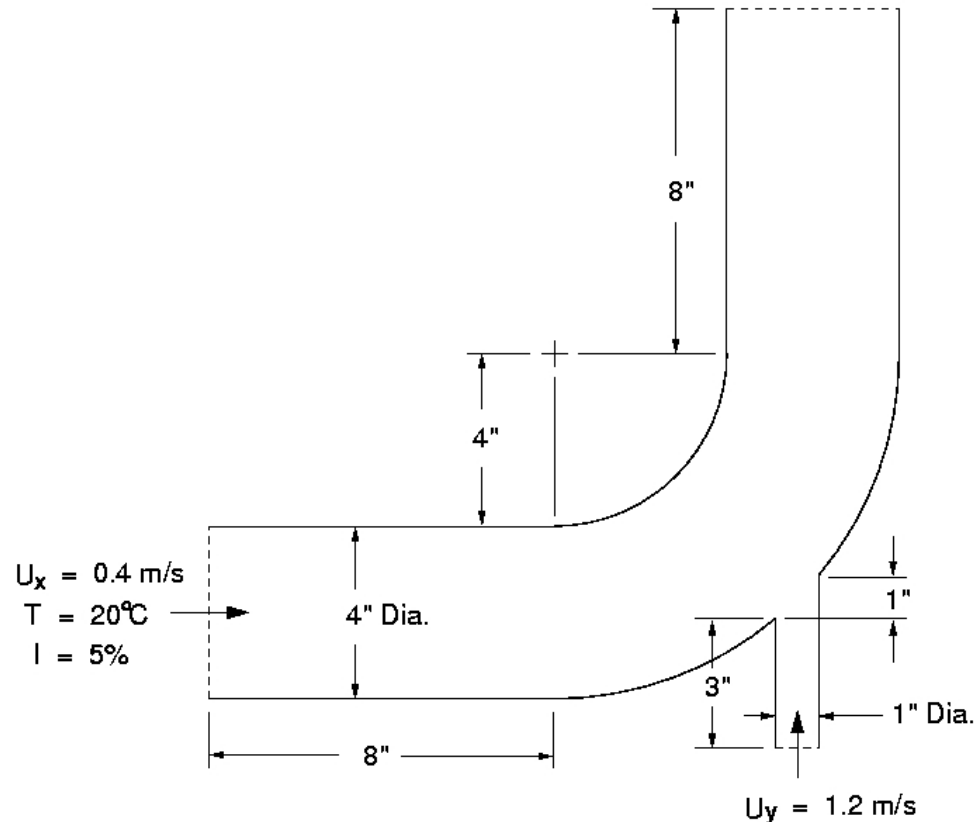
Codo 3D

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- Ejemplo 2D, evolutivo, laminar, incompresible e isoterma





Conversión a openFoam: ejecutar en terminal

```
fluentMeshToFoam elbow.msh
```

Malla no estructura en formato de Fluent

Mesh conversion

ansysToFoam	Converts an ANSYS input mesh file, exported from I-DEAS, to OpenFOAM format
cfx4ToFoam	Converts a CFX 4 mesh to OpenFOAM format
fluent3DMeshToFoam	Converts a Fluent mesh to OpenFOAM format
fluentMeshToFoam	Converts a Fluent mesh to OpenFOAM format including multiple region and region boundary handling
foamMeshToFluent	Writes out the OpenFOAM mesh in Fluent mesh format
foamToStarMesh	Reads an OpenFOAM mesh and writes a PROSTAR (v4) bnd/cel/vrt format
gambitToFoam	Converts a GAMBIT mesh to OpenFOAM format
gmshToFoam	Reads .msh file as written by Gmsh
ideasUnvToFoam	I-Deas unv format mesh conversion
kivaToFoam	Converts a KIVA grid to OpenFOAM format
mshToFoam	Converts .msh file generated by the Adventure system
netgenNeutralToFoam	Converts neutral file format as written by Netgen v4.4
plot3dToFoam	Plot3d mesh (ascii/formatted format) converter

Conversiones de mallas

polyDualMesh

Calculate the dual of a polyMesh. Adheres to all the feature and patch edges

sammToFoam

Converts a STAR-CD SAMP mesh to OpenFOAM format

star4ToFoam

Converts a STAR-CD (v4) PROSTAR mesh into OpenFOAM format

starToFoam

Converts a STAR-CD PROSTAR mesh into OpenFOAM format

tetgenToFoam

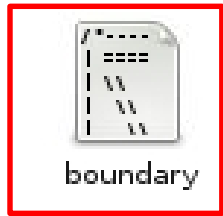
Converts .ele and .node and .face files, written by tetgen

writeMeshObj

For mesh debugging: writes mesh as three separate OBJ files which can be viewed with e.g. javaview



Directorio "polyMesh"



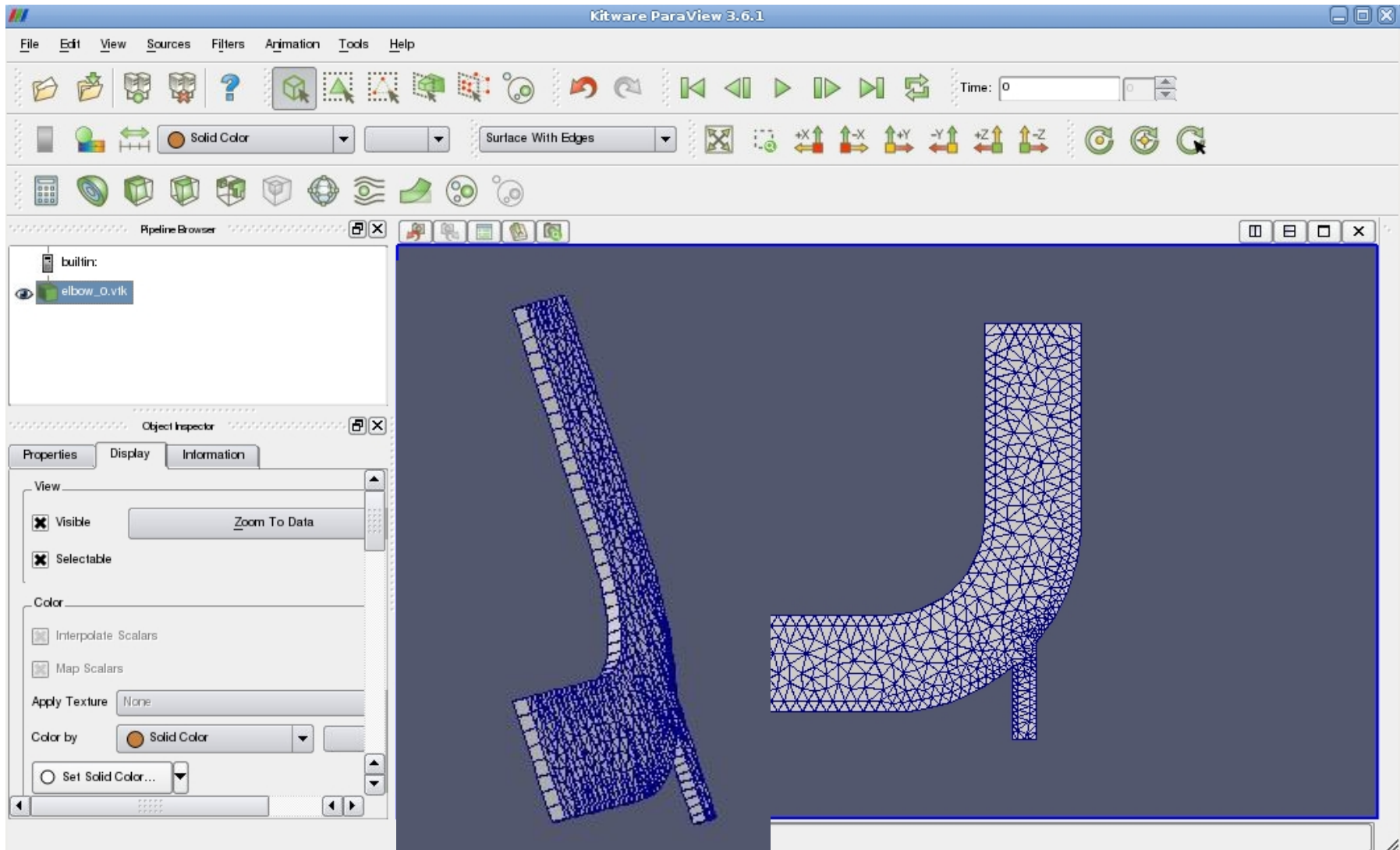
```
6  
(  
  wall-4  
  {  
    type          patch;  
    nFaces        100;  
    startFace     1300;  
  }  
  velocity-inlet-5  
  {  
    type          patch;  
    nFaces        8;  
    startFace     1400;  
  }  
  velocity-inlet-6  
  {  
    type          patch;  
    nFaces        4;  
    startFace     1408;  
  }  
  pressure-outlet-7  
  {  
    type          patch;  
    nFaces        8;  
    startFace     1412;  
  }  
  wall-8  
  {  
    type          patch;  
    nFaces        34;  
    startFace     1420;  
  }  
  frontAndBackPlanes  
  {  
    type          empty;  
    nFaces        1836;  
    startFace     1454;  
  }  
)
```

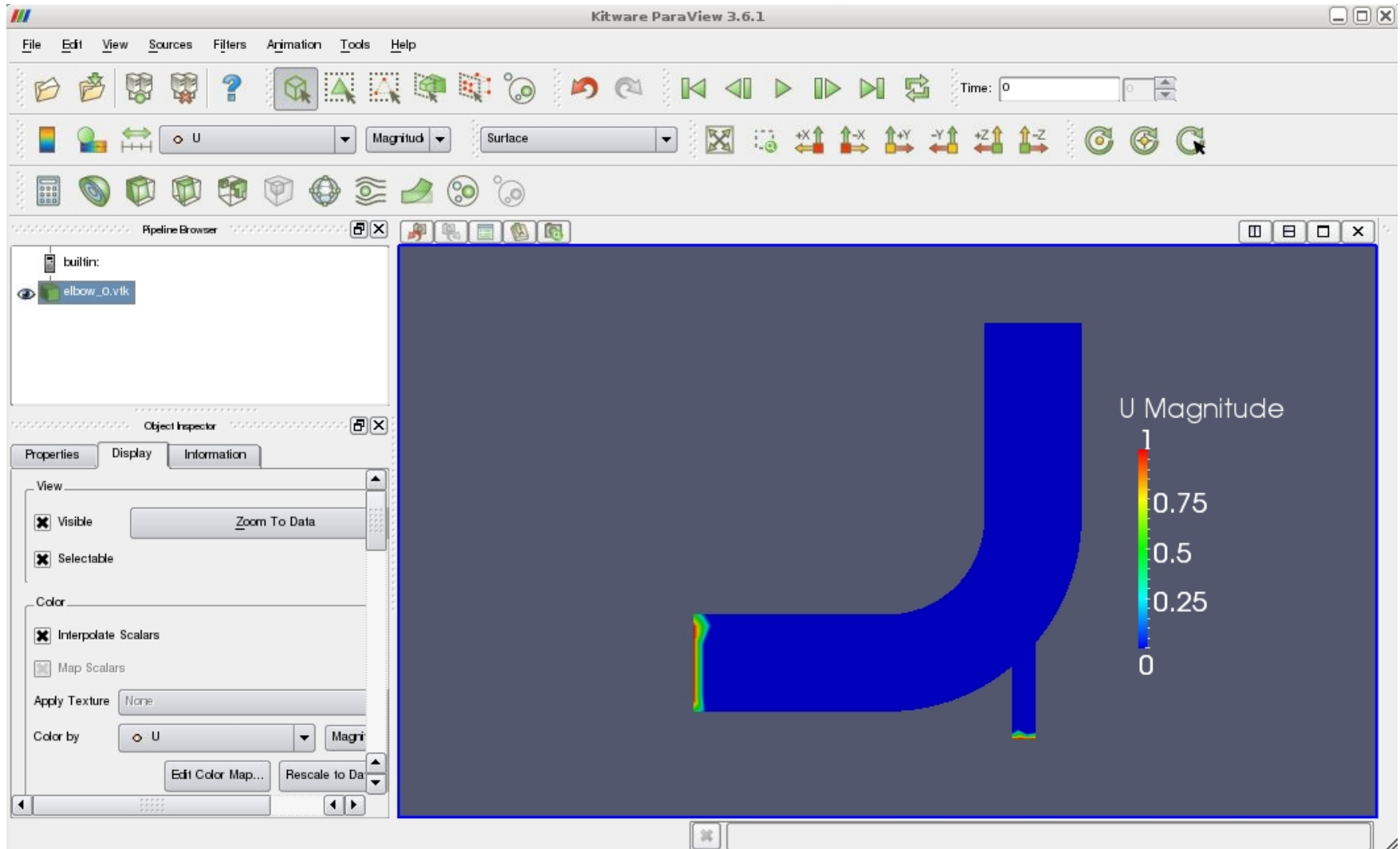


**Comprobar
condiciones de
contorno en el
fichero "0"**



- Preprocesado:
 - foamToVTK -time 0
 - Transforma los ficheros de las condiciones iniciales a formato VTK
 - paraview &
 - Visualiza la geometría, mallado y condiciones iniciales de la simulación
 - Alternativa: paraFoam &





Ejecución y resultados del caso

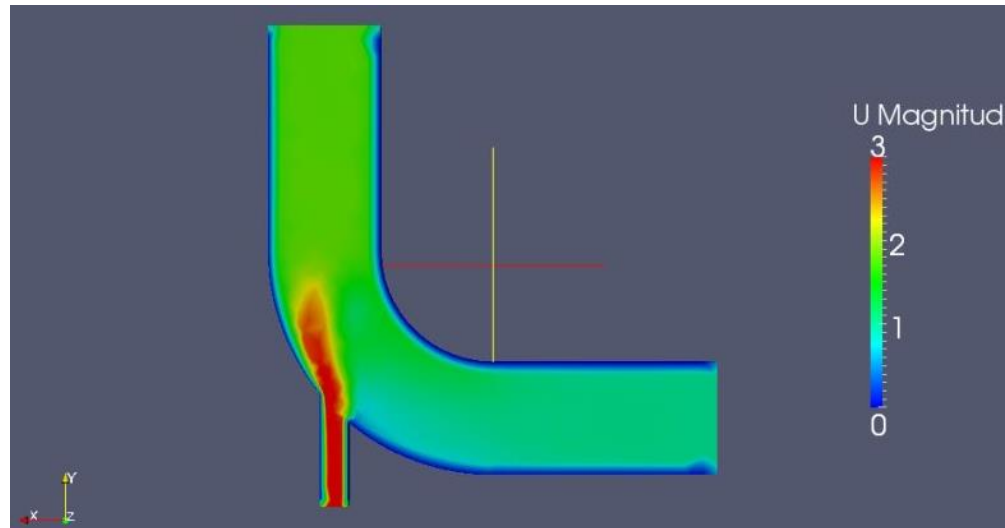
icoFoam > log

(ejecuta el solver hasta tiempo 10)

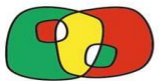
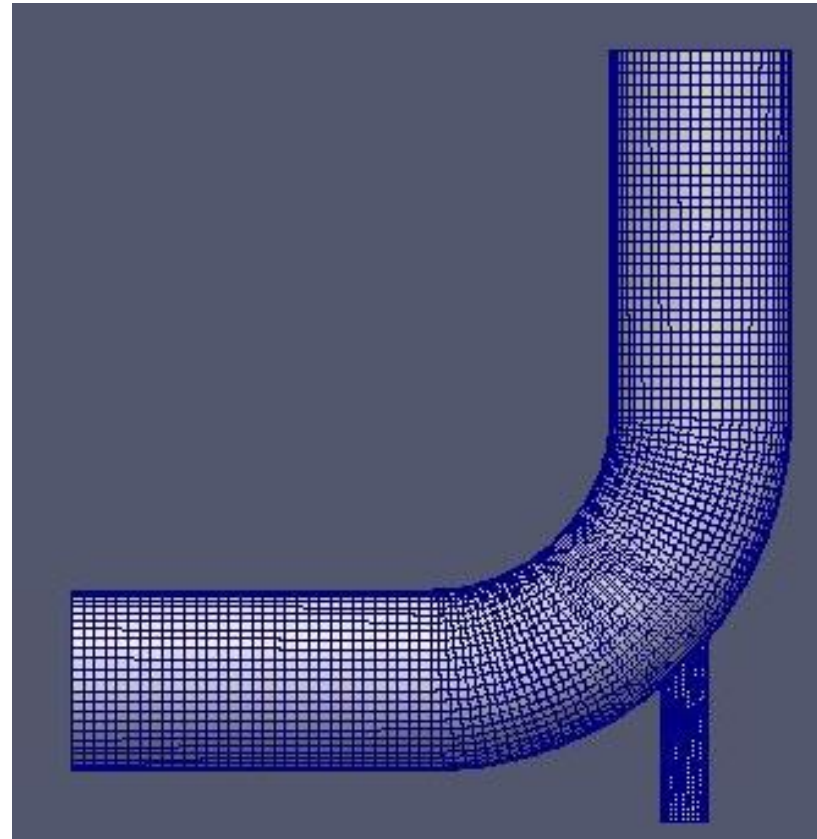
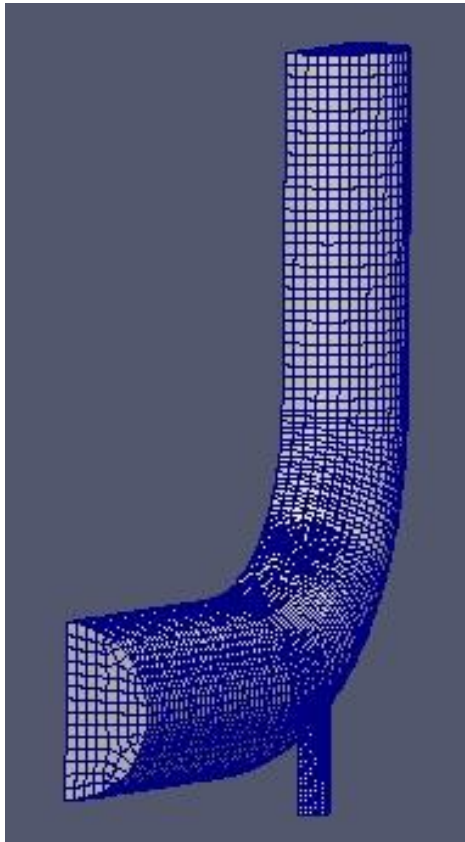
foamToVTK -time 0:10

paraview &

} Alternativa
visualización:
paraFoam &



- Ejemplo 3D, evolutivo, laminar, incompresible e isoterma



Archivo “polyMesh/boundary”

```
5
(
  wall
  {
    type          patch;
    nFaces        3630;
    startFace     38612;
  }
  symmetry
  {
    type          symmetryPlane;
    nFaces        2018;
    startFace     42242;
  }
  pressure-outlet-7
  {
    type          patch;
    nFaces        100;
    startFace     44260;
  }
  velocity-inlet-6
  {
    type          patch;
    nFaces        40;
    startFace     44360;
  }
  velocity-inlet-5
  {
    type          patch;
    nFaces        100;
    startFace     44400;
  }
)
```

“0/U”

```
dimensions      [0 1 -1 0 0 0 0];
internalField    uniform (0 0 0);
boundaryField
{
  wall
  {
    type          fixedValue;
    value         uniform (0 0 0);
  }
  symmetry
  {
    type          symmetryPlane;
  }
  velocity-inlet-5
  {
    type          fixedValue;
    value         uniform (1 0 0);
  }
  velocity-inlet-6
  {
    type          fixedValue;
    value         uniform (0 3 0);
  }
  pressure-outlet-7
  {
    type          zeroGradient;
  }
}
```



Resultados Tutorial “elbow_3D”

