

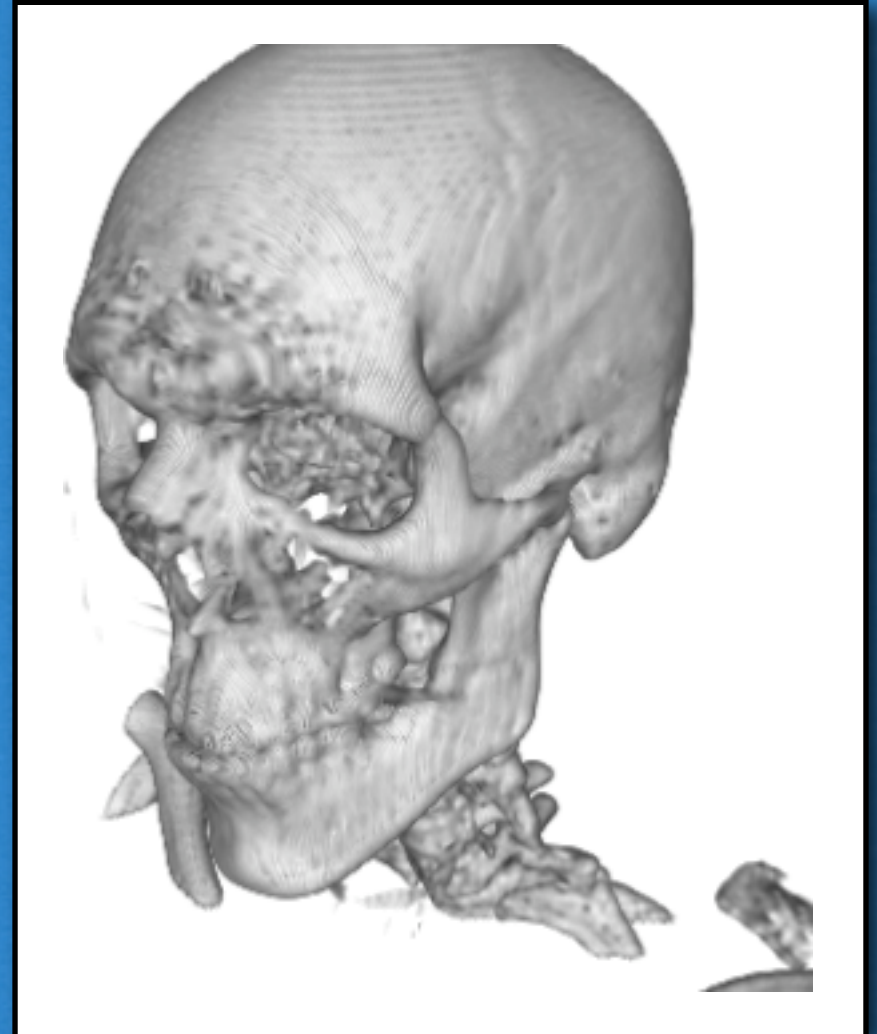
***VisTrails:***

# Visualization meets Data Management

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# Visualization

- ▶ Large Amounts of Data
- ▶ Scientific Exploration
- ▶ Effective and Efficient



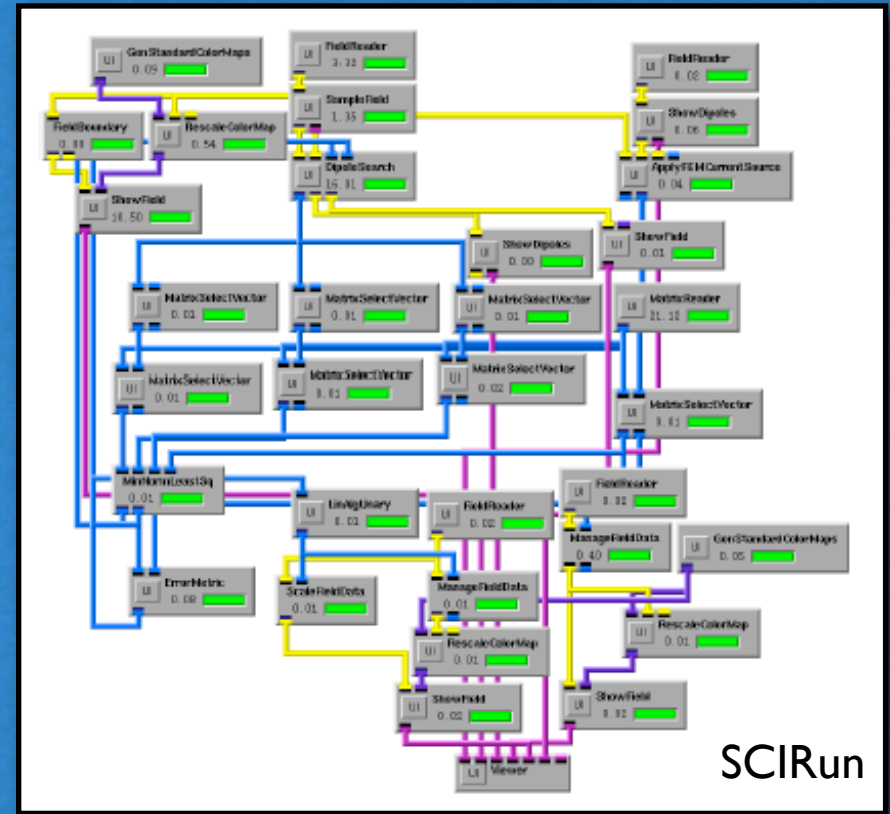
# Visualization Systems

## Benefits:

- ▶ Interactive creation
- ▶ Visual programming

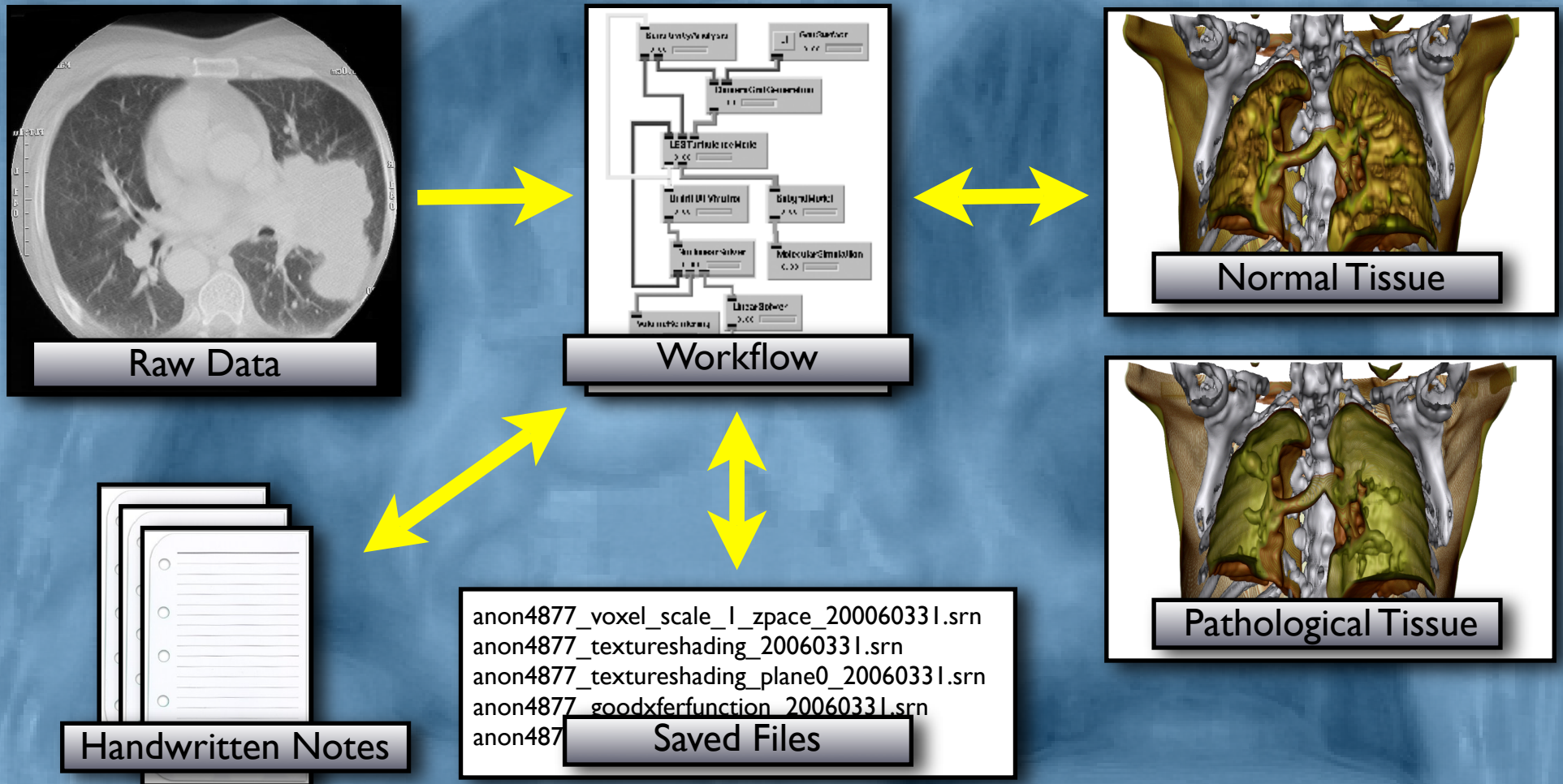
## Limitations:

- ▶ No data management
  - ▶ No scalability
  - ▶ Destructive updates
  - ▶ No reproducibility





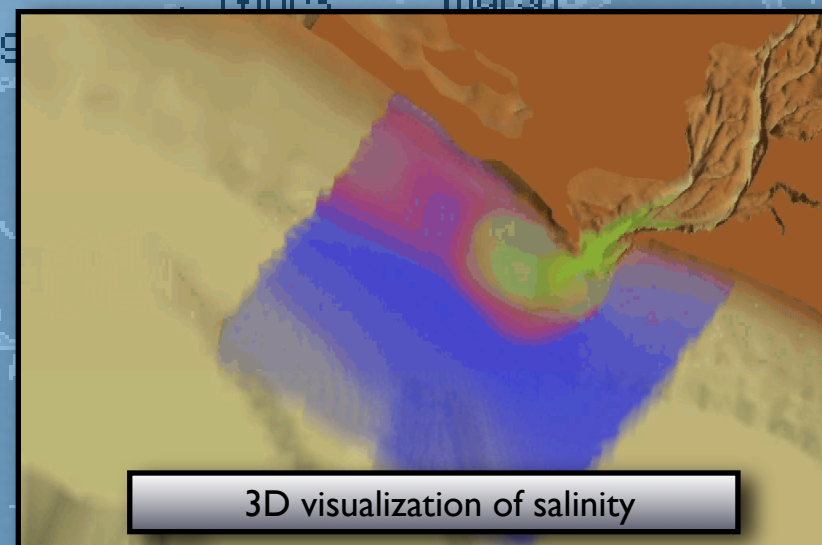
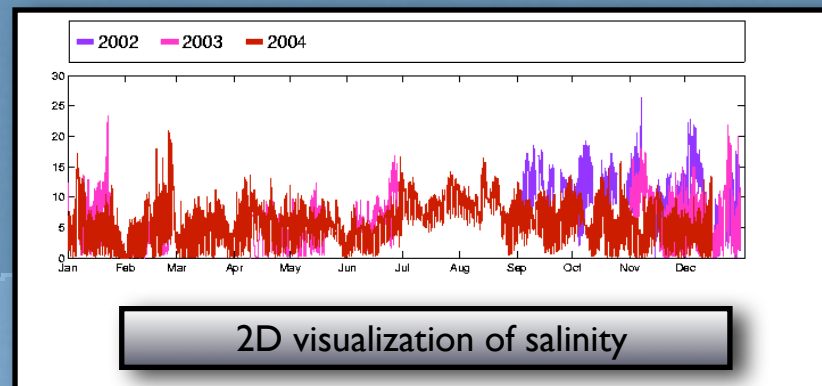
# Radiation Oncology



# CORIE

```
vtkPiecewiseFunction opacityTransferFunction
vtkPiecewiseFunction opacityTransferFunction
vtkColorTransferFunction colorTransferFunction
colorTransferFunction AddRGBPoint 0.0 0.7 0.3 0.3
colorTransferFunction AddRGBPoint 110.0 1.0 1.0 1.0
colorTransferFunction AddRGBPoint 255.0 1.0 1.0 1.0
# Create properties, mappers, volume actors, and ray cast function
vtkVolumeProperty volumeProperty
volumeProperty SetColor colorTransferFunction
volumeProperty SetScalarOpacity opacityTransferFunction
volumeProperty SetInterpolationTypeToLinear
volumeProperty SetShade 1
vtkVolumeRayCastCompositeFunction compositeFunction
vtkVolumeRayCastMapper volumeMapper
volumeMapper SetInput [reader GetOutput]
volumeMapper SetVolumeRayCastFunction compositeFunction
vtkVolume volume
vol
vol
```

Manually Maintained Scripts



# VisTrails

VisTrails streamlines the analysis process

- ▶ Facilitates collaborative exploration
- ▶ Allows reproducibility
- ▶ Enables comparative visualization