# My Private FLAC3D Repository


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# Contents

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# Working with FISH in FLAC3D

# 2

# Using Python with FLAC3D

## Contents



## 2.1 Geometry, Grid, Zone

The `itasca` module defines functions and classes for interaction between `Python` and `FLAC3D`.

```
"""
import itasca as it
it.command("python-reset-state false")
"""
```

The `it.command` function is used to issue a series of `FLAC3D` commands.

The `it.zone.count` function creates 1000 zones

```
"""
it.zone.count() # outputs 1000
"""
```

The `it.zone.find(1)` returns a Zone object with id 1. The object is assigned to the `Python` variable $z$.

```
"""
z = it.zone.find(1)
print z # outputs <itasca.zone.Zone object at 0x00000001B388600, ID : 1>
z.pos() # outputs vec3(( 5.00000e-01, 5.00000e-01, 5.00000e-01))
"""
```

The variable $z$ is a Zone object (`FLAC3D` zone)

`pos` method of this object returns the zone centroid.

`for` statement is used to iterate over sequences of things, Loop over all `FLAC3D` zones.

```
"""
volume_sum = 0.0
for z in it.zone.list():
  volume_sum += z.vol()
"""
```

Check that the sum of the zone volumes is what we expect.

```
"""
print volume_sum # outputs 1000.0
print z.vol() * it.zone.count()
assert volume_sum == z.vol() * it.zone.count() # outputs 1000.0
"""
```

Let's find a zone near the center of the model

```
"""
z = it.zone.near ((5,5,5))
#confirm position with pos method
z.pos() # outputs vec3(( 4.500000e+00, 4.500000e+00, 4.500000e+00))
"""
```

## 2.2 Group, Range

```
"""


"""
```

## 2.3 Constitutive Model

## 2.4 B.C. and I.C.

## 2.5 Step to Equilibrium

## 2.6 Support, Structure, Restore

## 2.7 Plot

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# Illustrative Model – Mechanics of FLAC3D

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