

```
In [1]: import mne
#%gui qt
#import matplotlib

#%matplotlib qt
import numpy as np
from matplotlib import pyplot as plt
from stormdb.access import Query
from pickle import load
from scipy import stats
from mne.datasets import sample
from mne.stats import spatio_temporal_cluster_1samp_test
import os
import pickle
from copy import deepcopy
import warnings
warnings.filterwarnings("ignore", category=DeprecationWarning)
# os.environ['ETS_TOOLKIT'] = 'qt4'
# os.environ['QT_API'] = 'pyqt5'
# %gui qt
#mne.viz.set_3d_backend("notebook")
```

```
In [2]: proj_name = 'MINDLAB2020_MEG-AuditoryPatternRecognition'
wdir = '/projects/' + proj_name + '/scratch/working_memory/'
stats_dir = wdir + 'results/stats/'
data_dir = wdir + 'averages/data/'

subs_dir = '/projects/' + proj_name + '/scratch/fs_subjects_dir/'
sample_path = sample.data_path()
sample_subjects_dir = sample_path + '/subjects'
src_sample = mne.read_source_spaces(sample_subjects_dir +
                                     '/fsaverage/bem/fsaverage-vol-5-src.fif'
')
```

```
Reading a source space...
[done]
1 source spaces read
```

```
In [3]: # Read stats
bands = ['theta', 'alpha', 'beta1', 'beta2']#['theta', 'alpha', 'beta1', 'beta2']
times = {'encoding': [0,2], 'delay': [2,4], 'recall': [4,6.25]}
#times = {'delay': [2,4], 'recall': [4,6.25]}
stats = {}
for b in bands:
    stats[b] = {}
    for tn in times:
        t = times[tn]
        csfname = '{}TFR_{}_{:}-{:}.py'.format(stats_dir, b, np.round(float(t[0])), 2), np.round(float(t[1]), 2))
        cfile = open(csfname, 'rb')
        stats[b][tn] = pickle.load(cfile)
        cfile.close()
print(stats)
```

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4 ,
2.86902544],
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88,
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2.70910004]]), 'pvals': array([[4.61297391e-05, 7.82263430e-0
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[3.40985864e-05, 5.69541332e-06, 1.09755760e-05, ...,
5.05200285e-01, 5.14996638e-01, 3.65673355e-01],
[2.18214671e-05, 3.66874625e-06, 8.65884411e-06, ...,
4.29573545e-01, 4.46455084e-01, 2.98402654e-01],
....,
[2.39196872e-03, 4.76913807e-04, 2.88900816e-03, ...,
1.03531174e-02, 1.91808882e-02, 1.38905346e-02],
[2.16917306e-03, 4.17014211e-04, 2.48419581e-03, ...,
7.81268252e-03, 1.47102602e-02, 1.09817865e-02],
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[1.95133762e-04, 1.57124136e-04, 1.16559744e-04, ...,
3.67217345e-03, 3.32722741e-03, 2.73977773e-03],
[2.88486473e-04, 2.46676550e-04, 2.09490257e-04, ...,
1.39734442e-02, 1.24811776e-02, 1.22395058e-02],
....,
[6.80718684e-01, 6.47876001e-01, 5.79563361e-01, ...,
3.63214432e-02, 2.94116533e-02, 2.32432279e-02],
[6.85574622e-01, 6.56330386e-01, 5.95242119e-01, ...,
5.77185006e-02, 4.72852429e-02, 3.87691245e-02],
[5.65431889e-01, 5.17725512e-01, 4.47829036e-01, ...,
4.52935787e-02, 3.79647526e-02, 3.22023000e-02]]), 'data_mean
': array([[0.04652668, 0.04725254, 0.04828746, ..., 0.03369775, 0.033
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[0.04689233, 0.04757958, 0.04851555, ..., 0.03626661, 0.036579
34,
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    0.03730991],
[0.05406408, 0.05479027, 0.05549644, ..., 0.03620641, 0.036236
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[0.00762834, 0.00833869, 0.00989343, ..., 0.03664737, 0.038234
19,
    0.0397876 ],
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    0.03818178],
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53,
    0.03733914]]), 'data_sd': array([[0.08123353, 0.08090369, 0.0
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92,
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...,
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48,
    0.106522 ],
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56,
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[False, False, False, ..., False, False, False],
[False, False, False, ..., False, False, False],
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ray([[ 0.31405237, 0.37264638, 0.42639926, ..., 0.19480622,
    0.21859653, 0.21714516],
[ 0.25061505, 0.30326878, 0.3495476 , ..., -0.18680808,
    -0.18511477, -0.22562977],
[-0.2582817 , -0.18150149, -0.07912482, ..., 0.07016552,
    0.10724045, 0.13470723],
...,
[ 1.89188712, 1.89790145, 1.83848276, ..., 0.72783102,
    0.72863568, 0.72866821],
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    0.34961112, 0.2867208 ]]), 'pvals': array([[0.75458904, 0.8
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```
[0.710747 , 0.76275185, 0.85659608, ..., 0.06260483, 0.146759  
91,  
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01,  
 0.36062849],  
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02,  
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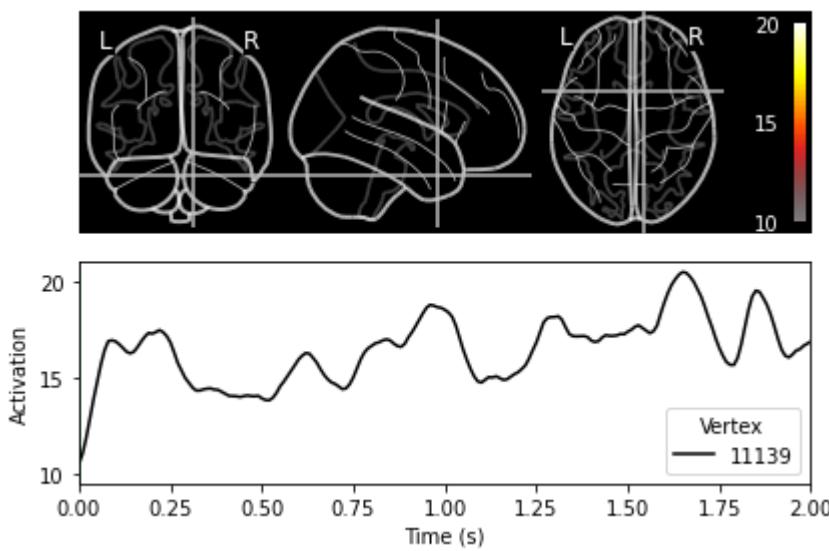
```
In [4]: # Load and morph a source time course  
dfname = data_dir + '0021_LZW_TFR_src2_beta1.p'  
dfile = open(dfname, 'rb')  
all_stc = pickle.load(dfile)  
dfile.close()  
stc = deepcopy(all_stc['same'])  
del all_stc  
  
# load source morph  
morph = mne.read_source_morph(subs_dir + '0021_LZW/bem/0021_LZW_vol-mor  
ph.h5')  
stc = morph.apply(stc)  
print(stc)  
  
<VolSourceEstimate | 14629 vertices, subject : fsaverage, tmin : -125  
0.0 (ms), tmax : 6500.0 (ms), tstep : 10.0 (ms), data shape : (14629,  
776), ~86.7 MB>
```

```
In [5]: # Plot 1 stc

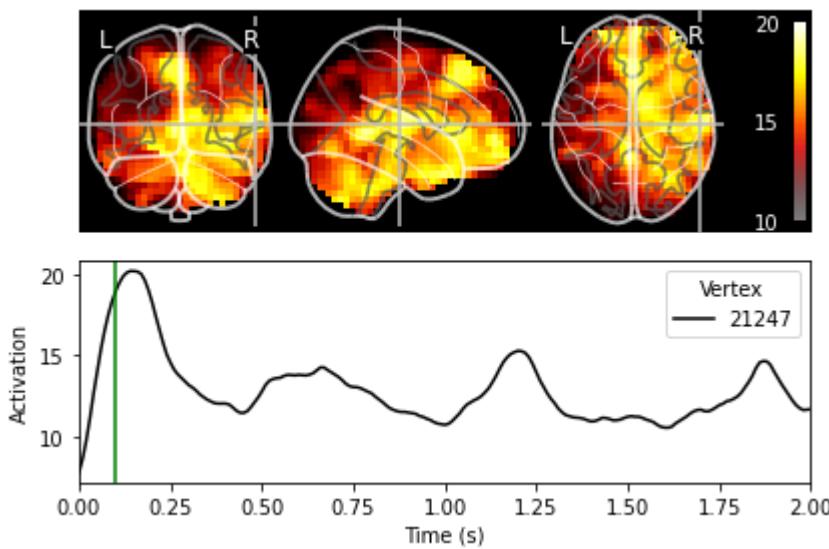
b = 'theta'
p = 'delay'
c = 'manipulation'
for b in stats:
    for p in stats[b]:
        stc.data = stats[b][p][c]['tvals']*stats[b][p][c]['mask']
        stc.tmin = times[p][0]
        plot_times = np.arange(0,2,0.1)

        for pt in plot_times:
            print('{} {} {} {}'.format(b,p,c,stc.tmin+pt))
            brain = stc.plot(subjects_dir=subs_dir,initial_time = stc.tmin+pt,clim={'kind': 'value', 'lims': [10,15,20]},#time_viewer=True,
                                subject='fsaverage', mode = 'glass_brain',src=src_sample)
```

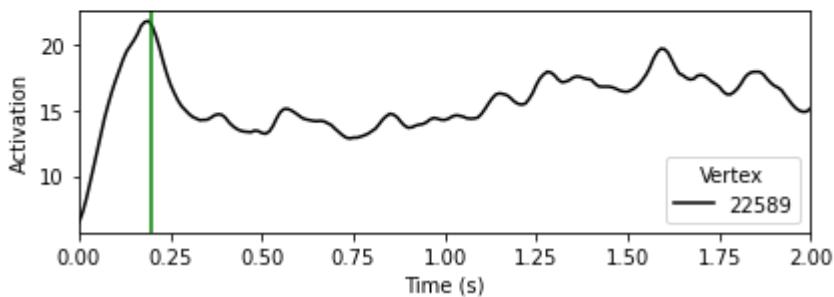
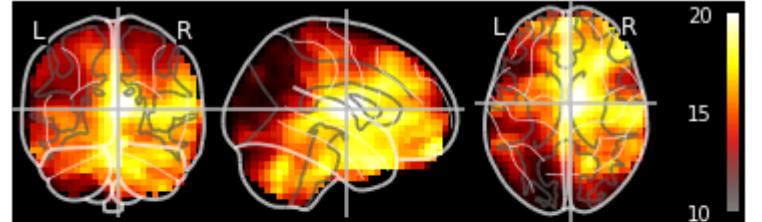
theta encoding manipulation 0.0
Fixing initial time: 0.0 sec
Showing: t = 0.000 s, (10.0, 10.0, -35.0) mm, [18, 25, 8] vox, 11139
vertex



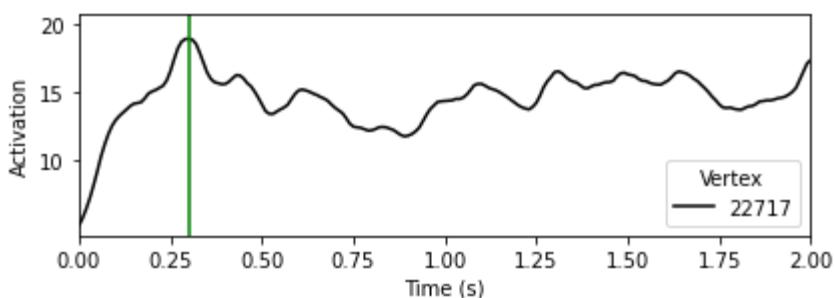
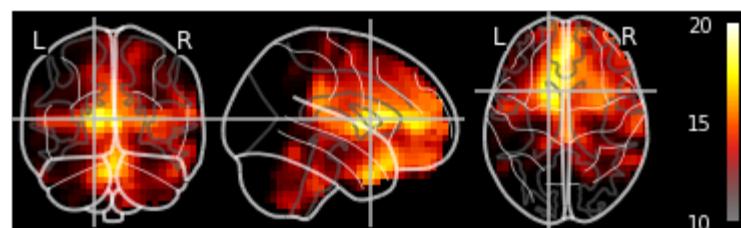
theta encoding manipulation 0.1
Fixing initial time: 0.1 sec
Showing: t = 0.100 s, (60.0, -20.0, 5.0) mm, [28, 19, 16] vox, 21247
vertex



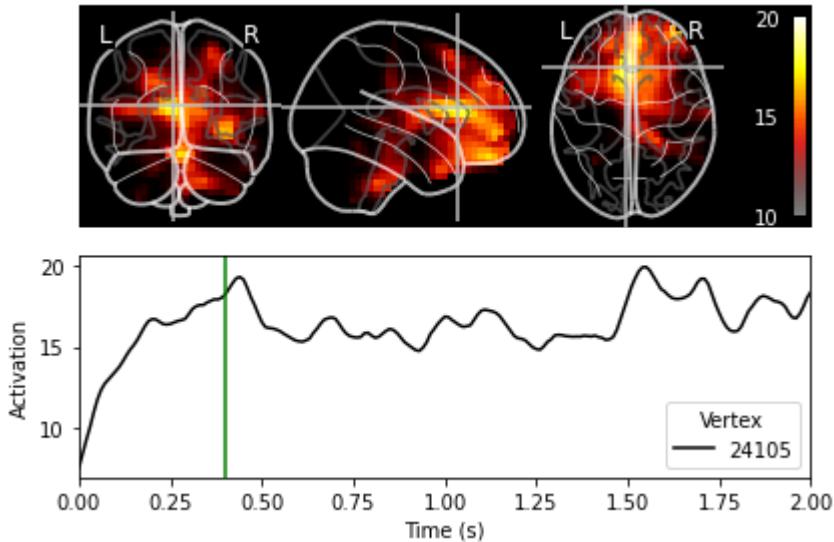
theta encoding manipulation 0.2
Fixing initial time: 0.2 sec
Showing: t = 0.200 s, (5.0, -10.0, 10.0) mm, [17, 21, 17] vox, 22589
vertex



```
theta encoding manipulation 0.3000000000000004
Fixing initial time: 0.3000000000000004 sec
Showing: t = 0.300 s, (-15.0, 10.0, 10.0) mm, [13, 25, 17] vox, 22717
vertex
```



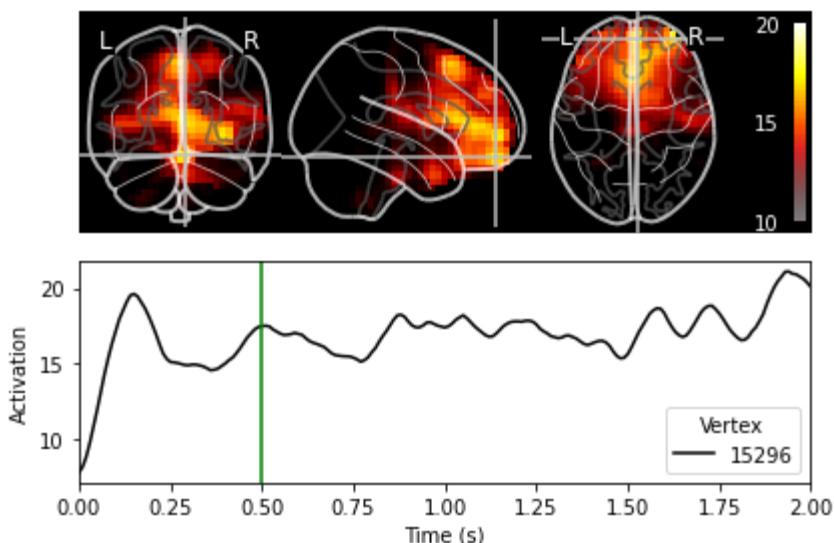
```
theta encoding manipulation 0.4
Fixing initial time: 0.4 sec
Showing: t = 0.400 s, (-5.0, 25.0, 15.0) mm, [15, 28, 18] vox, 24105
vertex
```



theta encoding manipulation 0.5

Fixing initial time: 0.5 sec

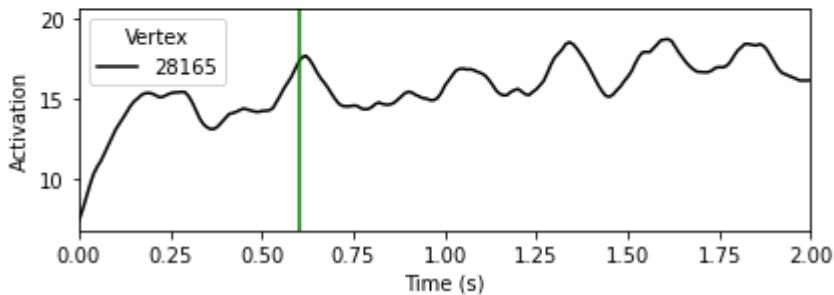
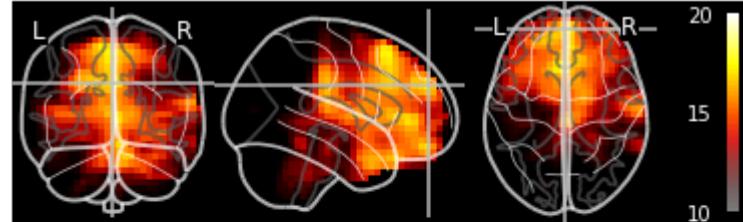
Showing: t = 0.500 s, (5.0, 55.0, -20.0) mm, [17, 34, 11] vox, 15296 vertex



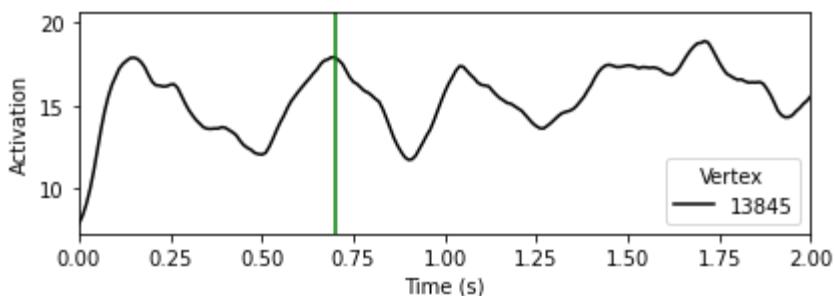
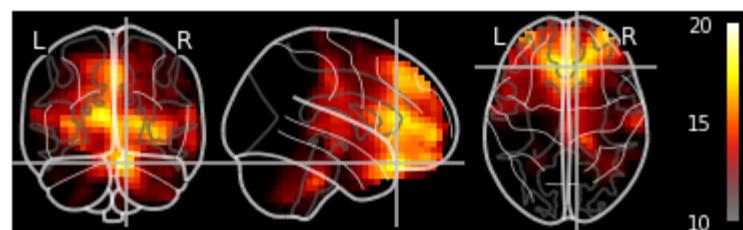
theta encoding manipulation 0.6000000000000001

Fixing initial time: 0.6000000000000001 sec

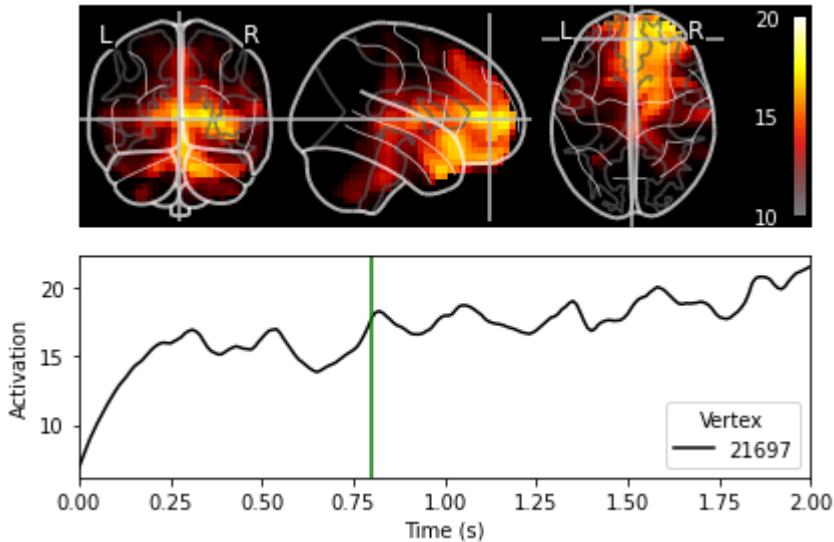
Showing: t = 0.600 s, (0.0, 55.0, 30.0) mm, [16, 34, 21] vox, 28165 vertex



```
theta encoding manipulation 0.7000000000000001
Fixing initial time: 0.7000000000000001 sec
Showing: t = 0.700 s, (10.0, 30.0, -25.0) mm, [18, 29, 10] vox, 13845
vertex
```



```
theta encoding manipulation 0.8
Fixing initial time: 0.8 sec
Showing: t = 0.800 s, (0.0, 50.0, 5.0) mm, [16, 33, 16] vox, 21697 ve
rtex
```

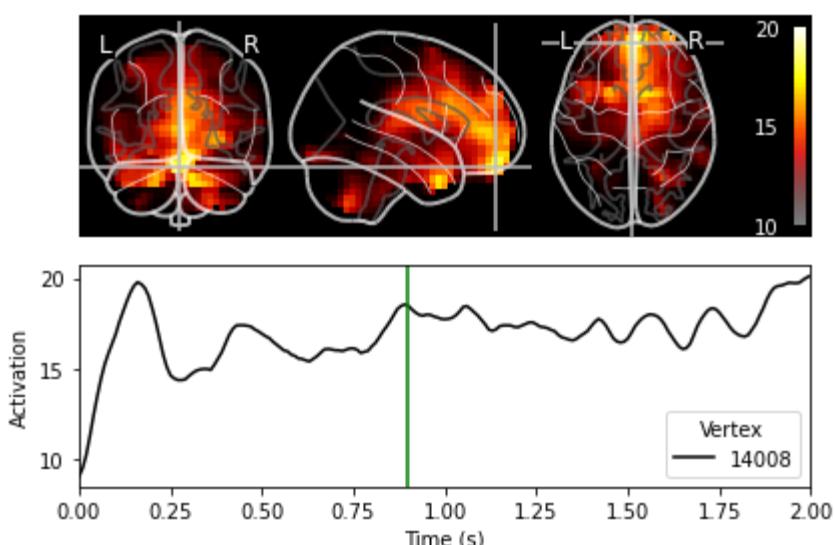


theta encoding manipulation 0.9

Fixing initial time: 0.9 sec

Showing: t = 0.900 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008

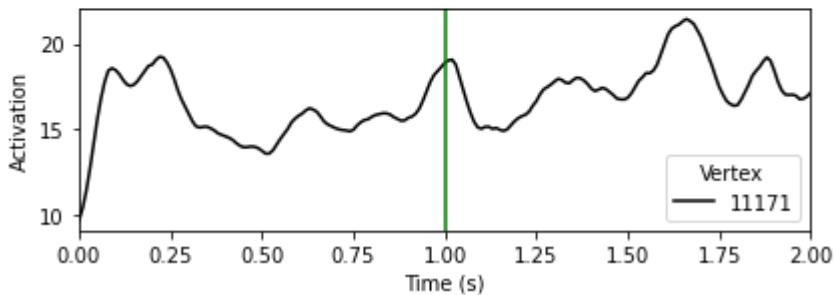
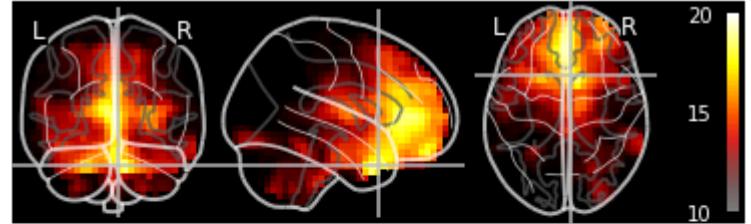
vertex



theta encoding manipulation 1.0

Fixing initial time: 1.0 sec

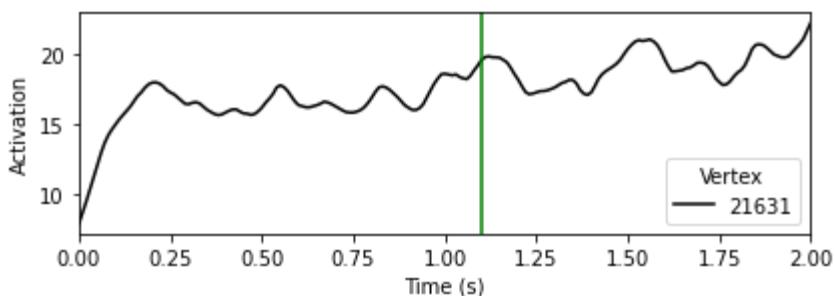
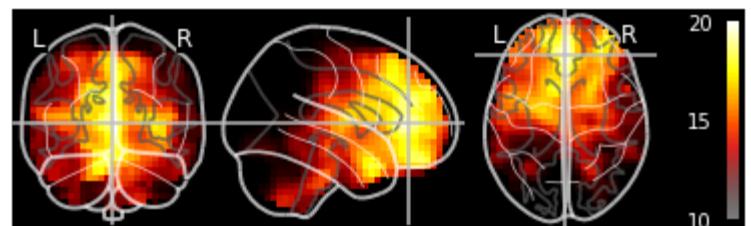
Showing: t = 1.000 s, (5.0, 15.0, -35.0) mm, [17, 26, 8] vox, 11171 vertex



theta encoding manipulation 1.1

Fixing initial time: 1.1 sec

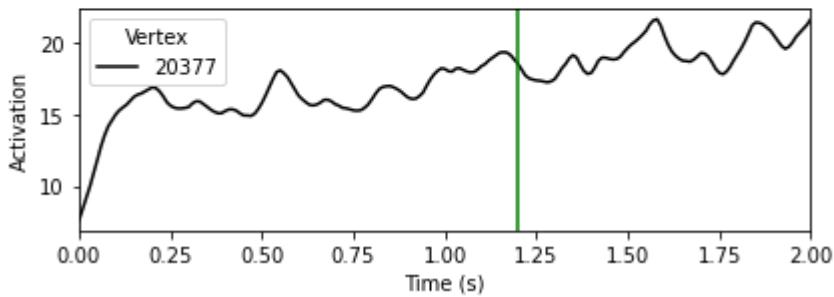
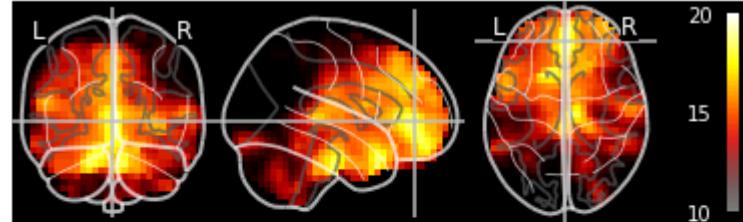
Showing: t = 1.100 s, (0.0, 40.0, 5.0) mm, [16, 31, 16] vox, 21631 vertex



theta encoding manipulation 1.2000000000000002

Fixing initial time: 1.2000000000000002 sec

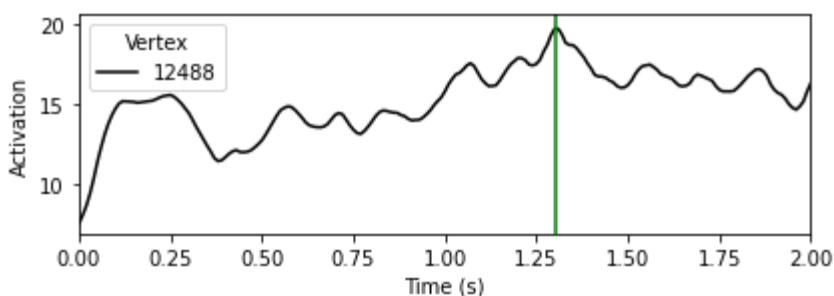
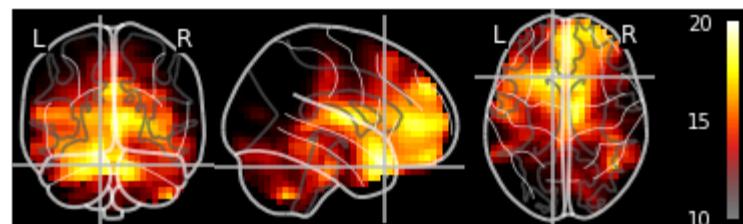
Showing: t = 1.200 s, (0.0, 45.0, -0.0) mm, [16, 32, 15] vox, 20377 vertex



theta encoding manipulation 1.3

Fixing initial time: 1.3 sec

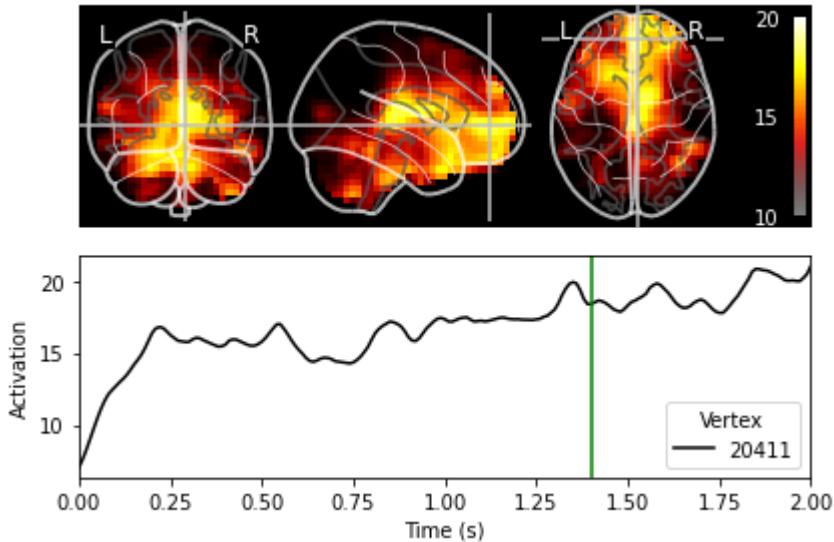
Showing: t = 1.300 s, (-10.0, 20.0, -30.0) mm, [14, 27, 9] vox, 12488 vertex



theta encoding manipulation 1.4000000000000001

Fixing initial time: 1.4000000000000001 sec

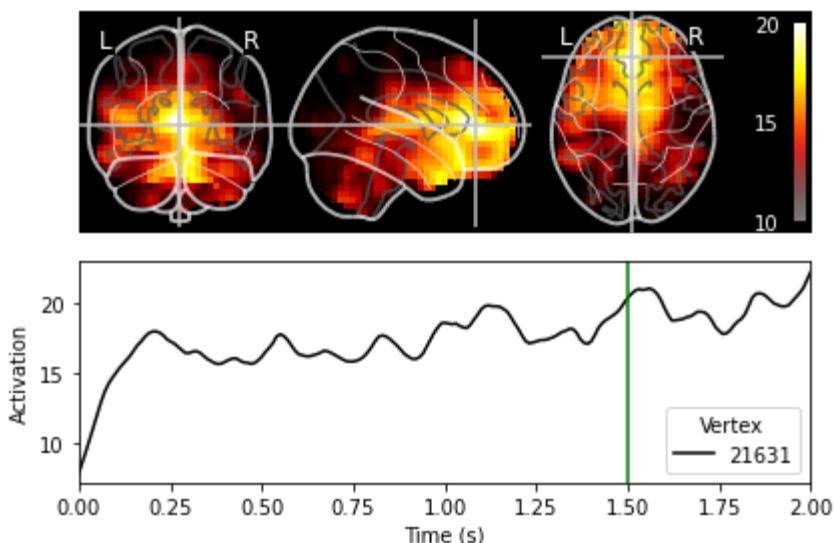
Showing: t = 1.400 s, (5.0, 50.0, -0.0) mm, [17, 33, 15] vox, 20411 vertex



theta encoding manipulation 1.5

Fixing initial time: 1.5 sec

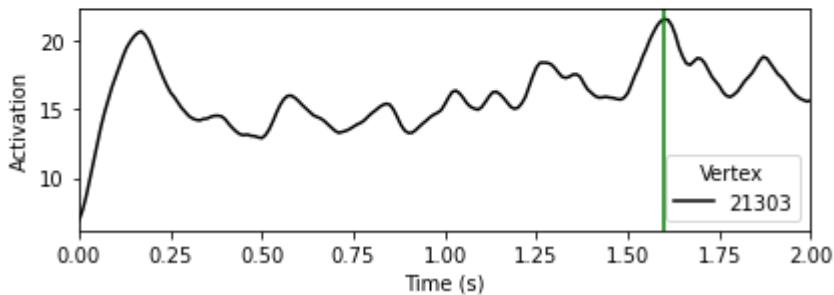
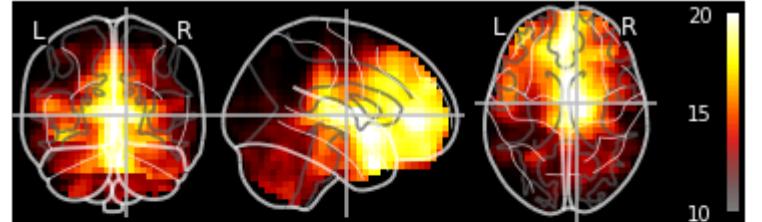
Showing: t = 1.500 s, (0.0, 40.0, 5.0) mm, [16, 31, 16] vox, 21631 vertex



theta encoding manipulation 1.6

Fixing initial time: 1.6 sec

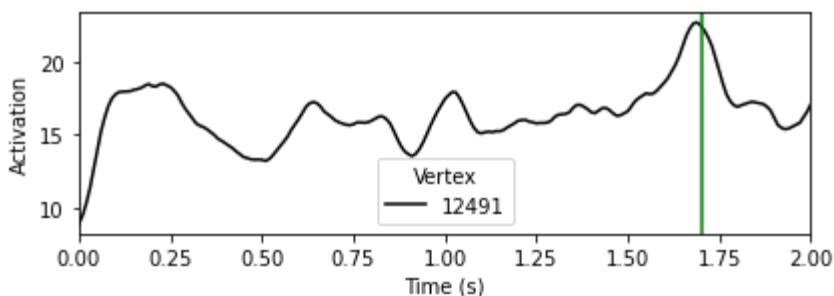
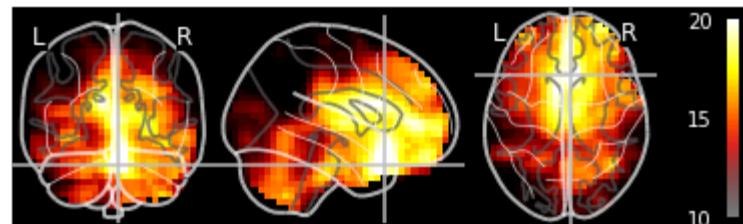
Showing: t = 1.600 s, (10.0, -10.0, 5.0) mm, [18, 21, 16] vox, 21303 vertex



theta encoding manipulation 1.7000000000000002

Fixing initial time: 1.7000000000000002 sec

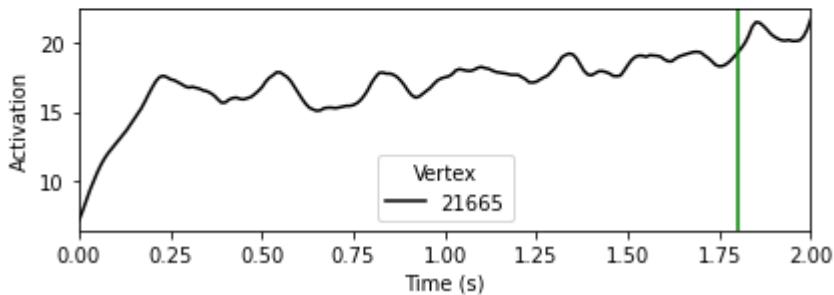
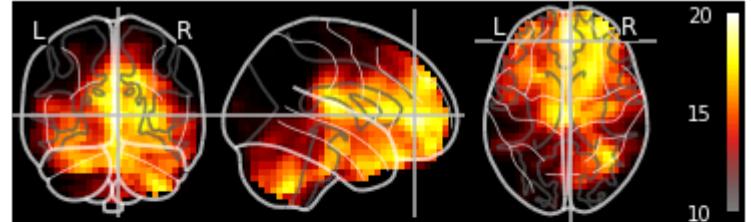
Showing: t = 1.700 s, (5.0, 20.0, -30.0) mm, [17, 27, 9] vox, 12491 vertex



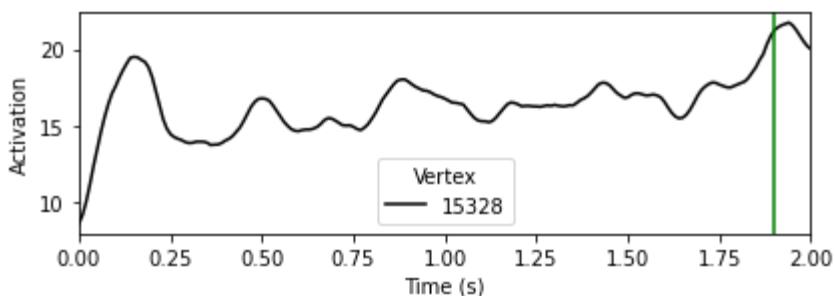
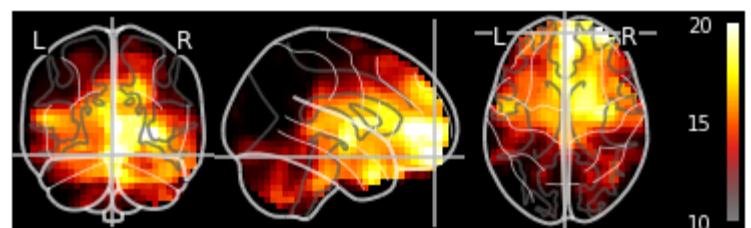
theta encoding manipulation 1.8

Fixing initial time: 1.8 sec

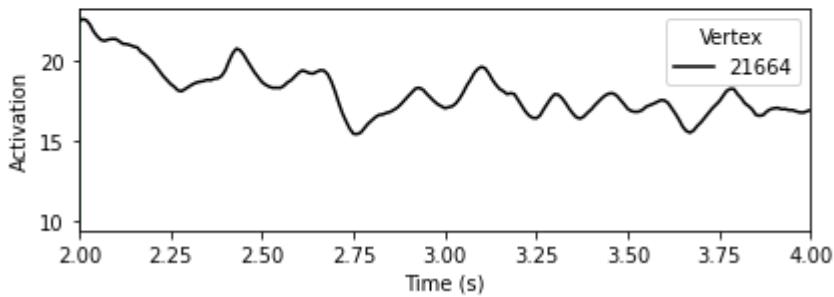
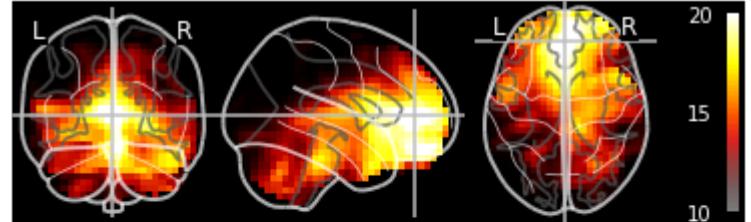
Showing: t = 1.800 s, (5.0, 45.0, 5.0) mm, [17, 32, 16] vox, 21665 vertex



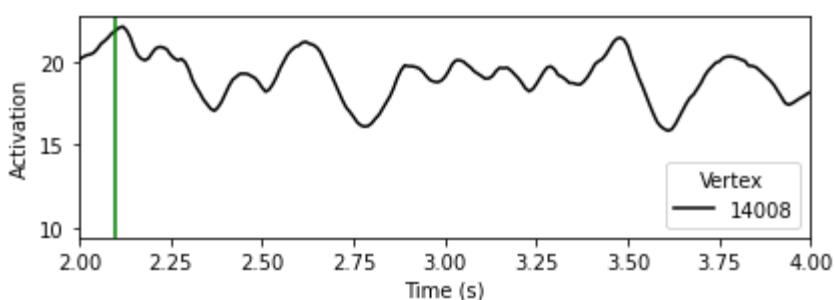
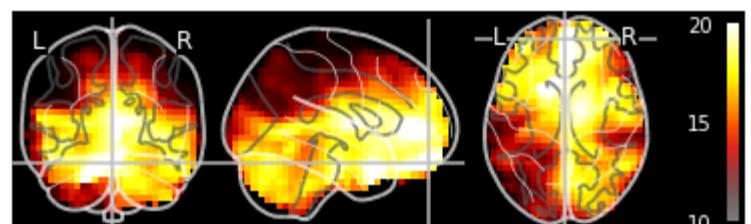
```
theta encoding manipulation 1.9000000000000001
Fixing initial time: 1.9000000000000001 sec
Showing: t = 1.900 s, (0.0, 60.0, -20.0) mm, [16, 35, 11] vox, 15328
vertex
```



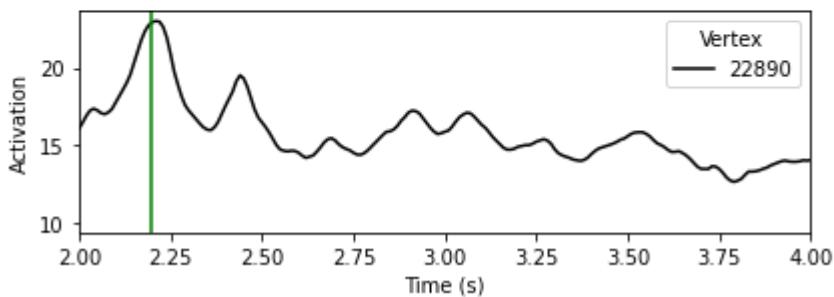
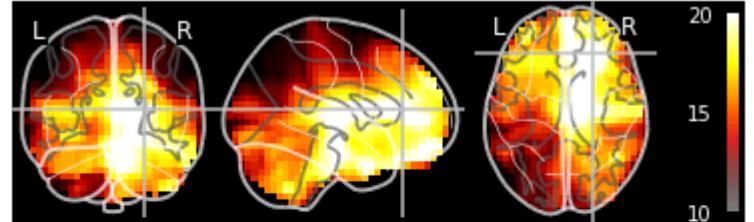
```
theta delay manipulation 2.0
Fixing initial time: 2.0 sec
Showing: t = 2.000 s, (0.0, 45.0, 5.0) mm, [16, 32, 16] vox, 21664
vertex
```



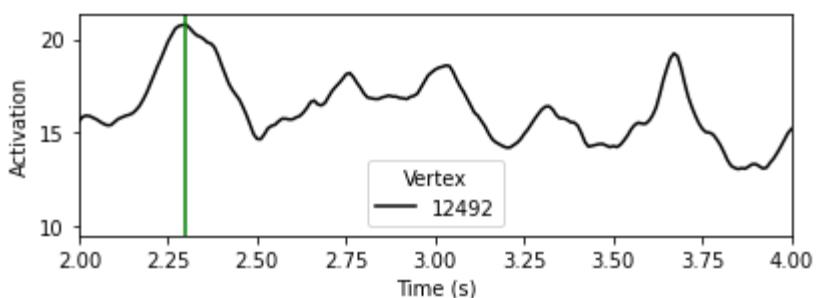
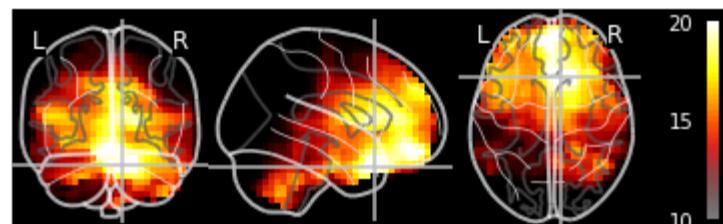
```
theta delay manipulation 2.1
Fixing initial time: 2.1 sec
Showing: t = 2.100 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



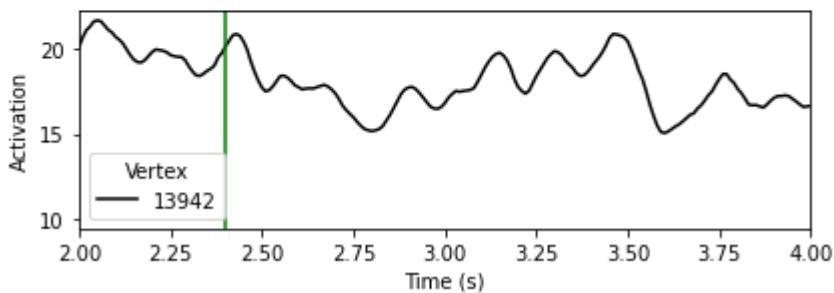
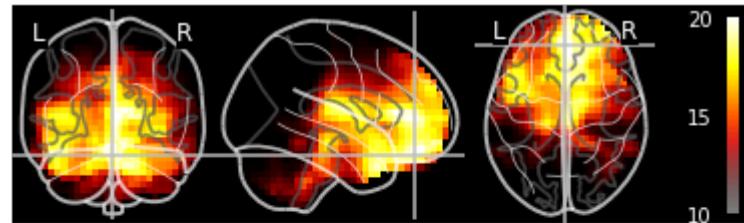
```
theta delay manipulation 2.2
Fixing initial time: 2.2 sec
Showing: t = 2.200 s, (25.0, 35.0, 10.0) mm, [21, 30, 17] vox, 22890
vertex
```



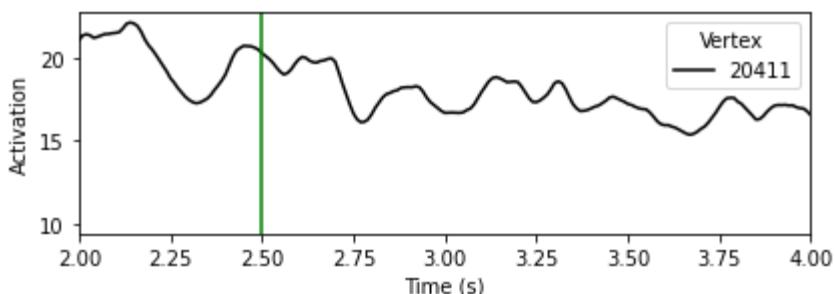
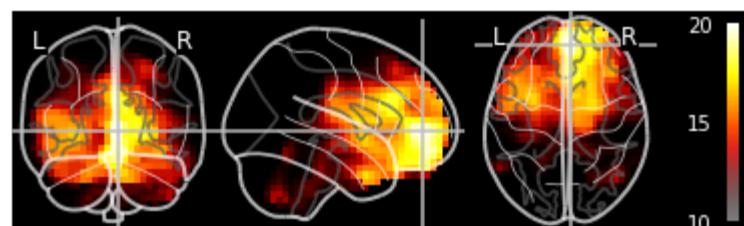
```
theta delay manipulation 2.3
Fixing initial time: 2.3 sec
Showing: t = 2.300 s, (10.0, 20.0, -30.0) mm, [18, 27, 9] vox, 12492
vertex
```



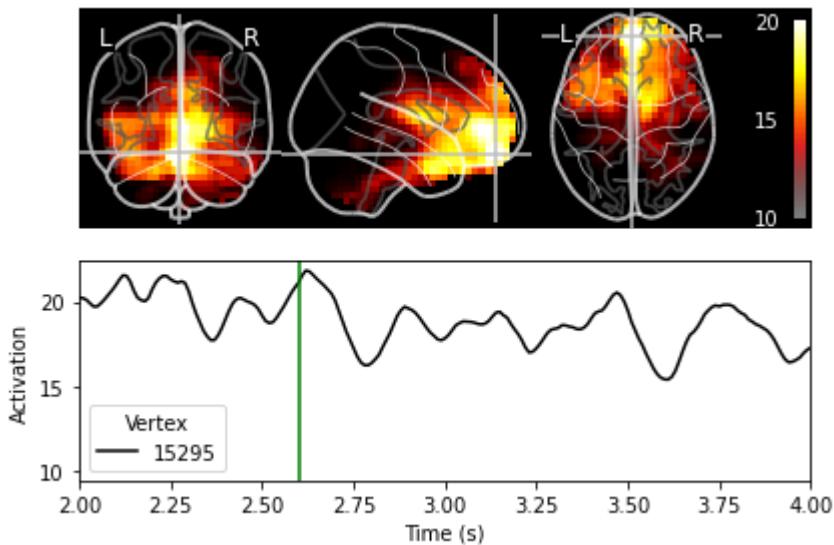
```
theta delay manipulation 2.4
Fixing initial time: 2.4 sec
Showing: t = 2.400 s, (0.0, 45.0, -25.0) mm, [16, 32, 10] vox, 13942
vertex
```



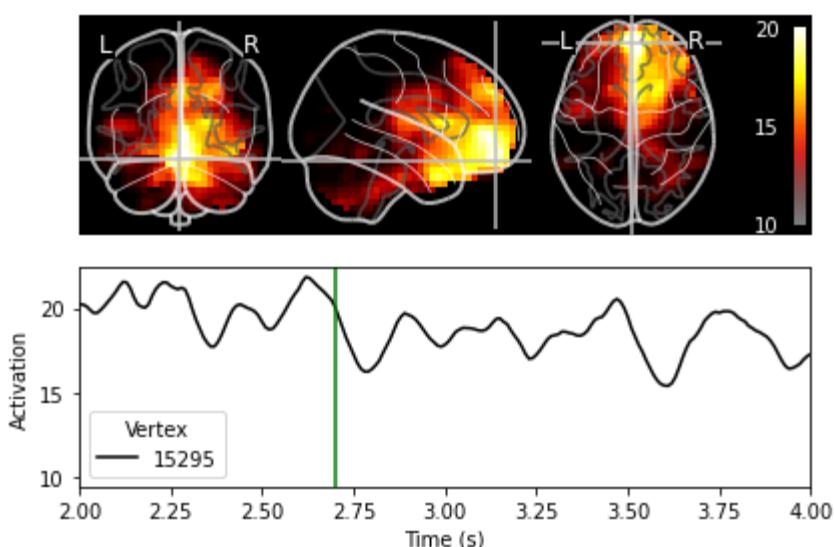
```
theta delay manipulation 2.5
Fixing initial time: 2.5 sec
Showing: t = 2.500 s, (5.0, 50.0, -0.0) mm, [17, 33, 15] vox, 20411 vertex
```



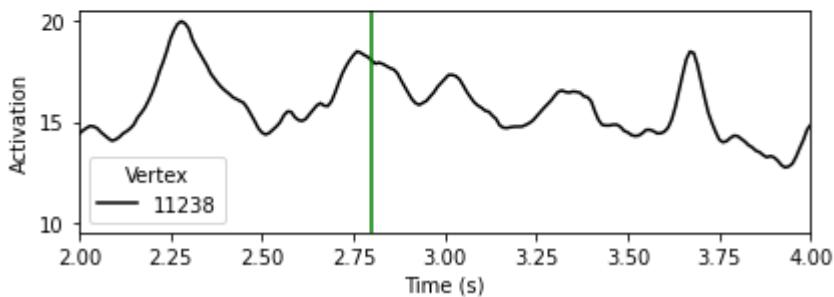
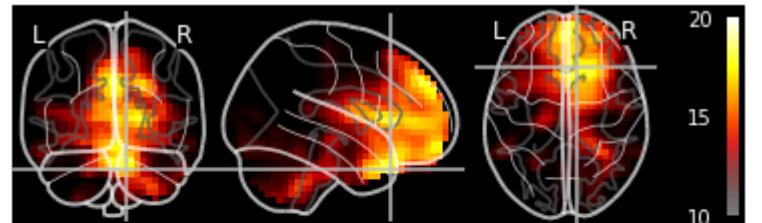
```
theta delay manipulation 2.6
Fixing initial time: 2.6 sec
Showing: t = 2.600 s, (0.0, 55.0, -20.0) mm, [16, 34, 11] vox, 15295 vertex
```



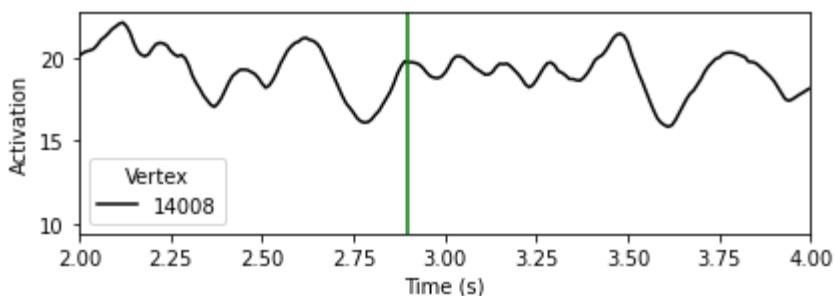
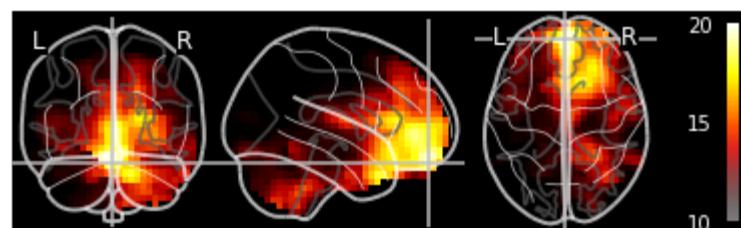
```
theta delay manipulation 2.7
Fixing initial time: 2.7 sec
Showing: t = 2.700 s, (0.0, 55.0, -20.0) mm, [16, 34, 11] vox, 15295
vertex
```



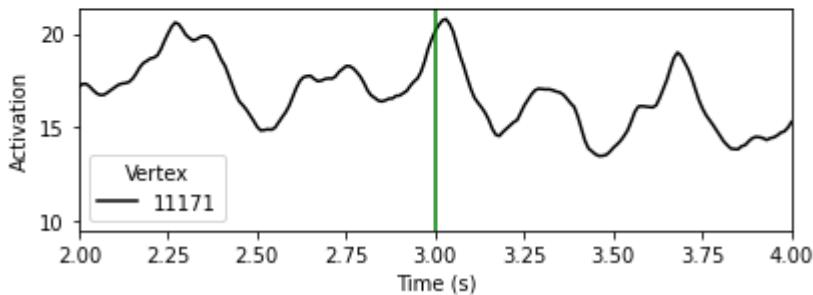
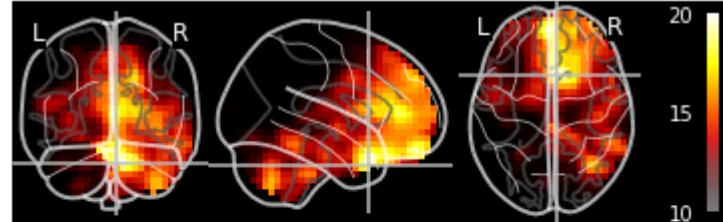
```
theta delay manipulation 2.8
Fixing initial time: 2.8 sec
Showing: t = 2.800 s, (10.0, 25.0, -35.0) mm, [18, 28, 8] vox, 11238
vertex
```



```
theta delay manipulation 2.9
Fixing initial time: 2.9 sec
Showing: t = 2.900 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



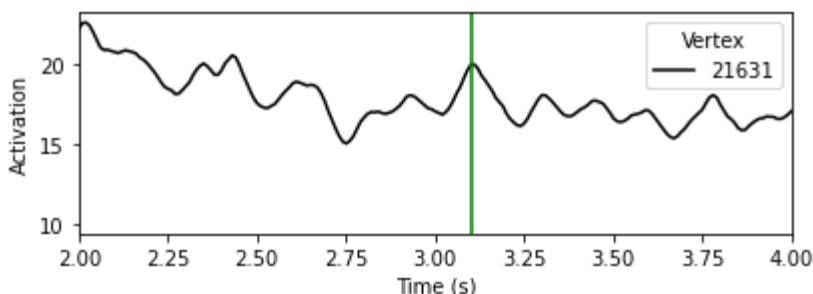
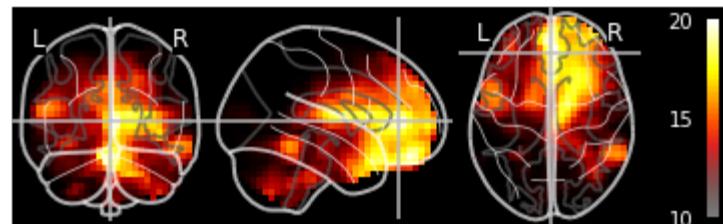
```
theta delay manipulation 3.0
Fixing initial time: 3.0 sec
Showing: t = 3.000 s, (5.0, 15.0, -35.0) mm, [17, 26, 8] vox, 11171 v
ertex
```



theta delay manipulation 3.1

Fixing initial time: 3.1 sec

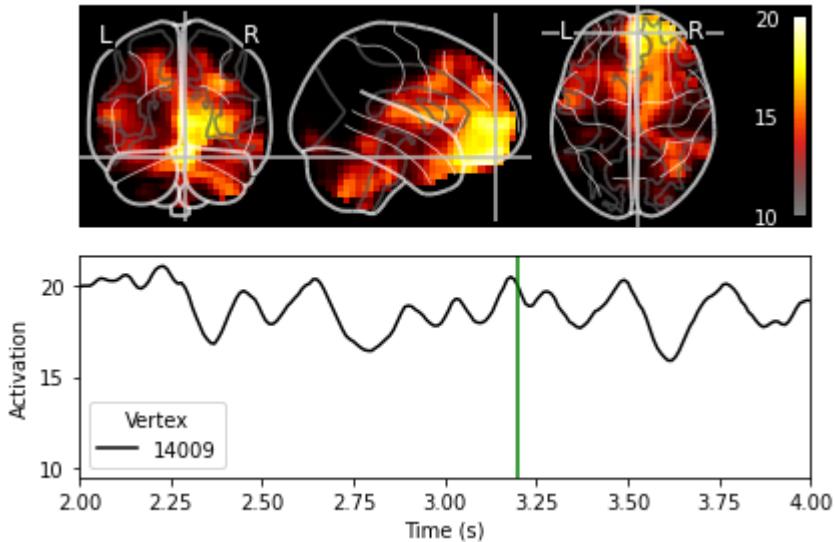
Showing: t = 3.100 s, (0.0, 40.0, 5.0) mm, [16, 31, 16] vox, 21631 vertex



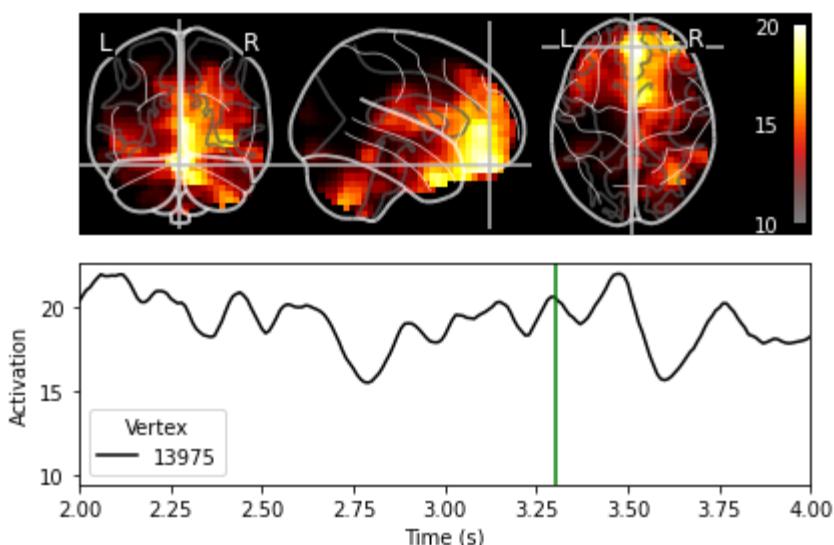
theta delay manipulation 3.2

Fixing initial time: 3.2 sec

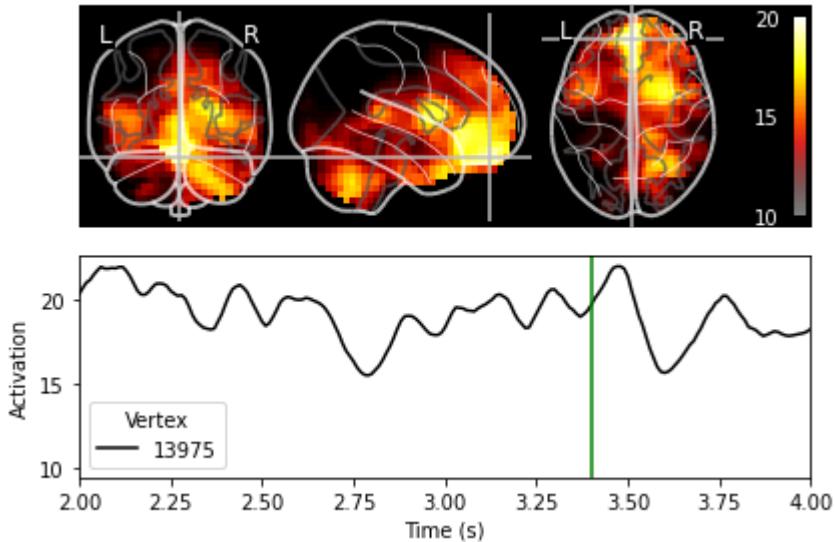
Showing: t = 3.200 s, (5.0, 55.0, -25.0) mm, [17, 34, 10] vox, 14009 vertex



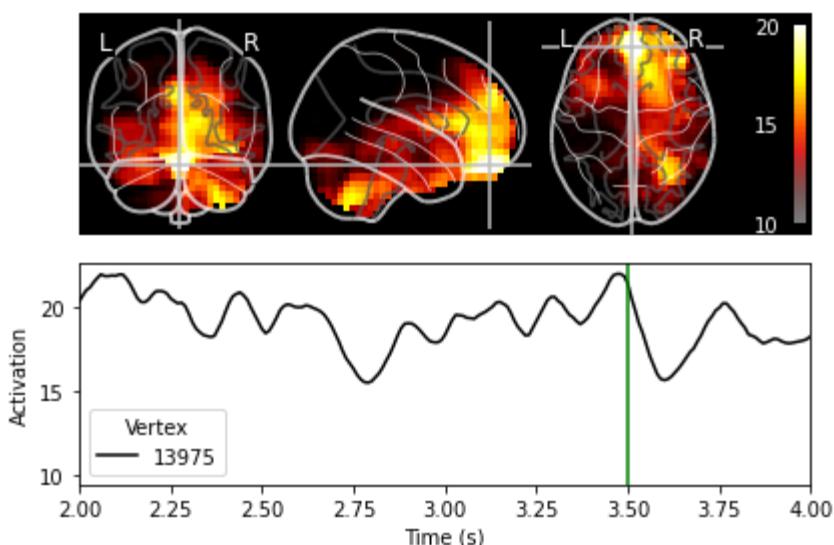
```
theta delay manipulation 3.3
Fixing initial time: 3.3 sec
Showing: t = 3.300 s, (0.0, 50.0, -25.0) mm, [16, 33, 10] vox, 13975
vertex
```



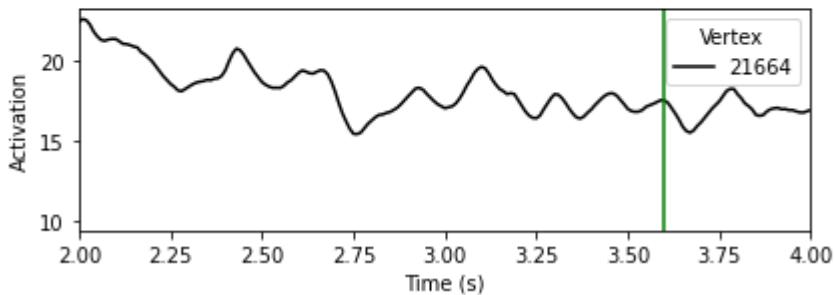
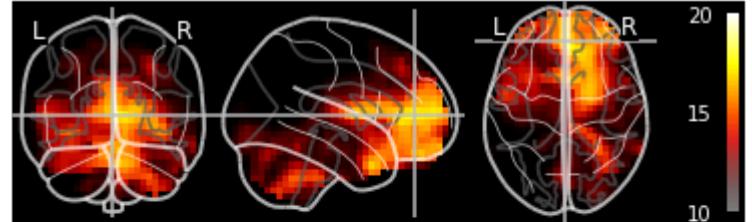
```
theta delay manipulation 3.4000000000000004
Fixing initial time: 3.4000000000000004 sec
Showing: t = 3.400 s, (0.0, 50.0, -25.0) mm, [16, 33, 10] vox, 13975
vertex
```



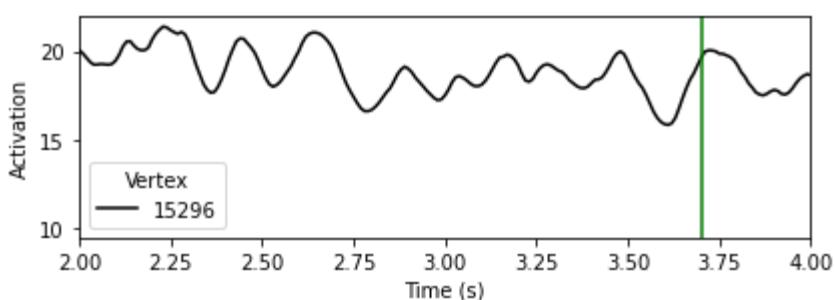
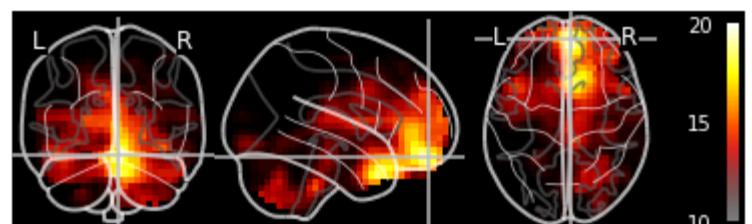
```
theta delay manipulation 3.5
Fixing initial time: 3.5 sec
Showing: t = 3.500 s, (0.0, 50.0, -25.0) mm, [16, 33, 10] vox, 13975
vertex
```



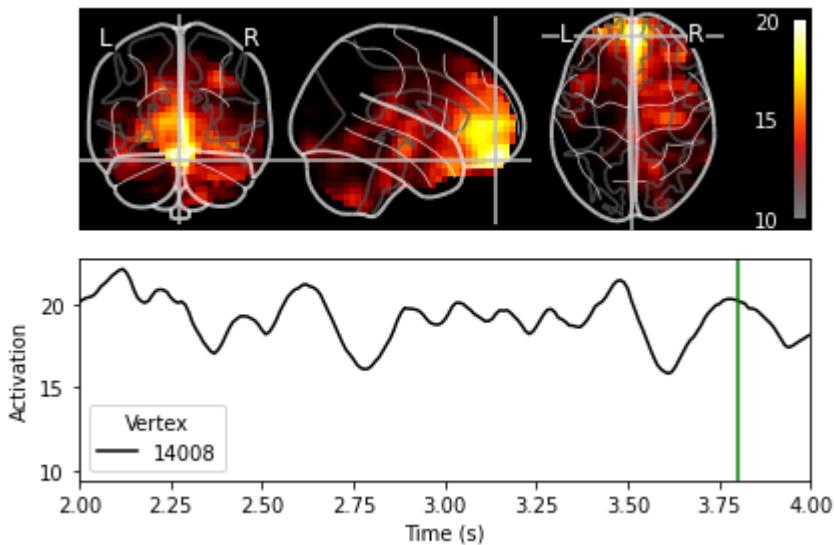
```
theta delay manipulation 3.6
Fixing initial time: 3.6 sec
Showing: t = 3.600 s, (0.0, 45.0, 5.0) mm, [16, 32, 16] vox, 21664 ve
rtex
```



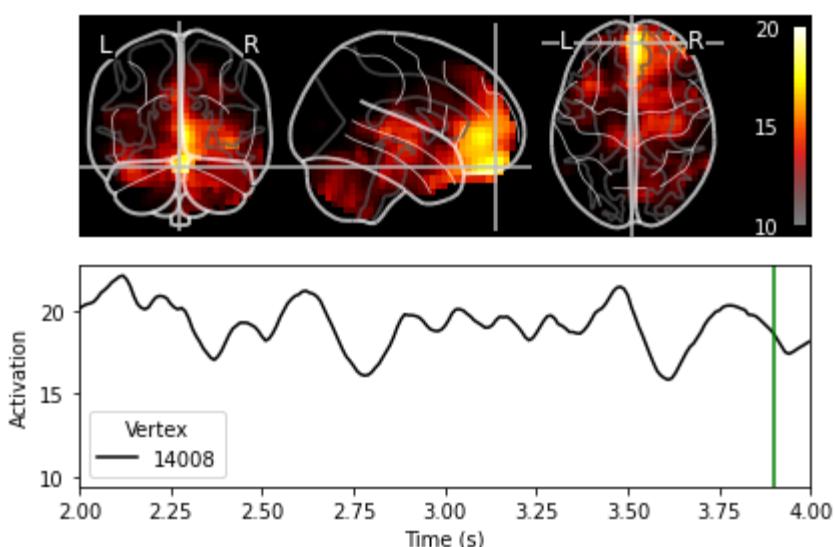
```
theta delay manipulation 3.7
Fixing initial time: 3.7 sec
Showing: t = 3.700 s, (5.0, 55.0, -20.0) mm, [17, 34, 11] vox, 15296
vertex
```



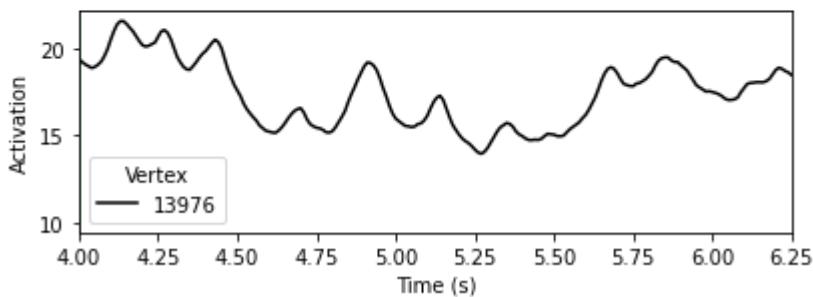
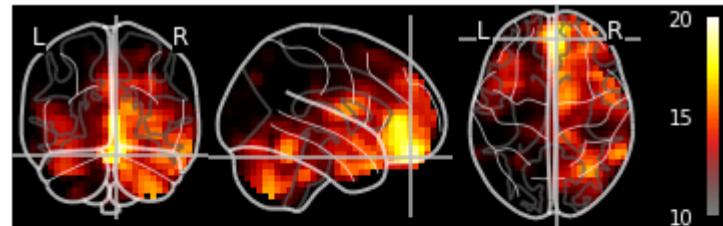
```
theta delay manipulation 3.8
Fixing initial time: 3.8 sec
Showing: t = 3.800 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



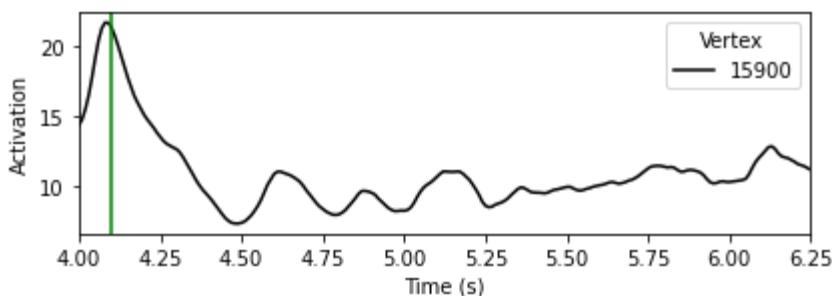
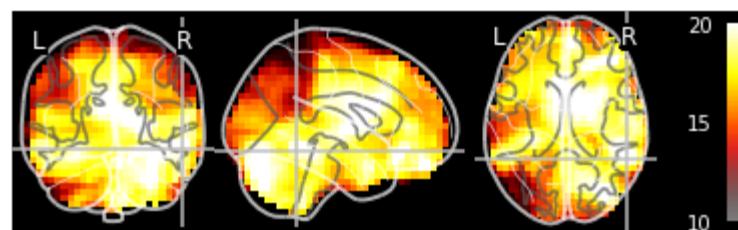
```
theta delay manipulation 3.9000000000000004
Fixing initial time: 3.900000000000000 sec
Showing: t = 3.900 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



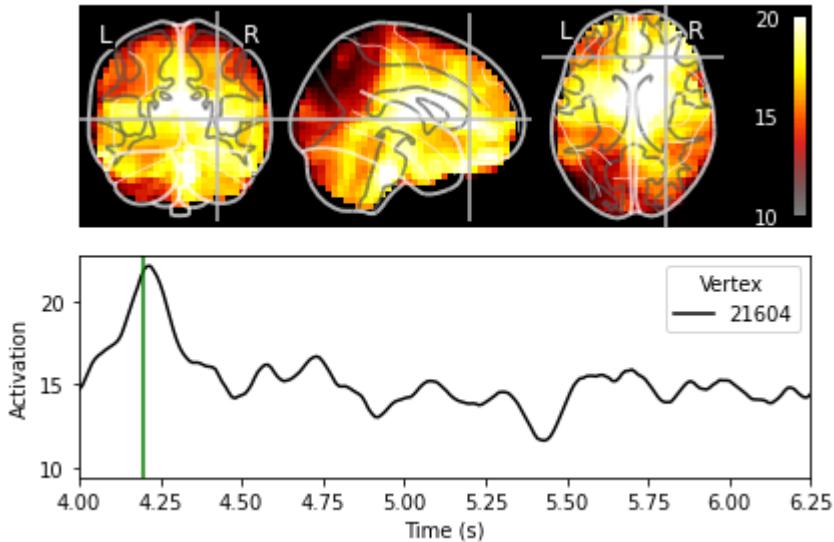
```
theta recall manipulation 4.0
Fixing initial time: 4.0 sec
Showing: t = 4.000 s, (5.0, 50.0, -25.0) mm, [17, 33, 10] vox, 13976
vertex
```



```
theta recall manipulation 4.1
Fixing initial time: 4.1 sec
Showing: t = 4.100 s, (55.0, -50.0, -15.0) mm, [27, 13, 12] vox, 1590
0 vertex
```



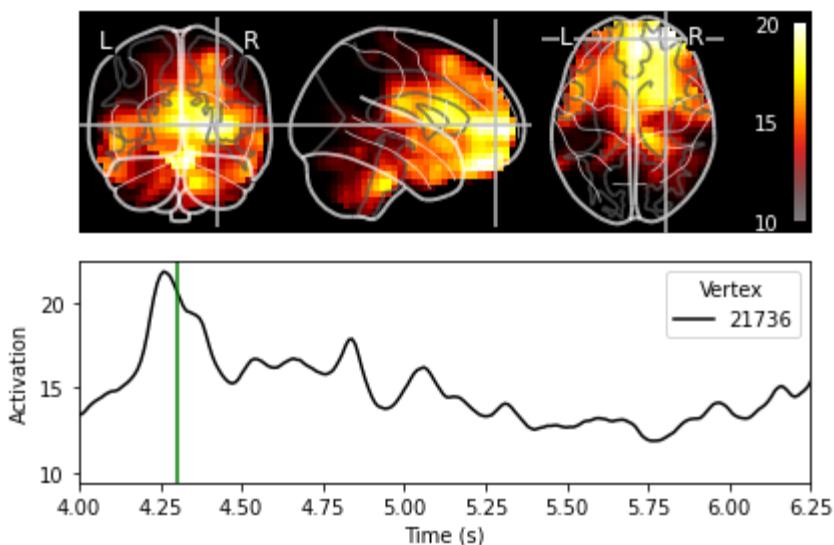
```
theta recall manipulation 4.2
Fixing initial time: 4.2 sec
Showing: t = 4.200 s, (30.0, 35.0, 5.0) mm, [22, 30, 16] vox, 21604 v
ertex
```



theta recall manipulation 4.3

Fixing initial time: 4.3 sec

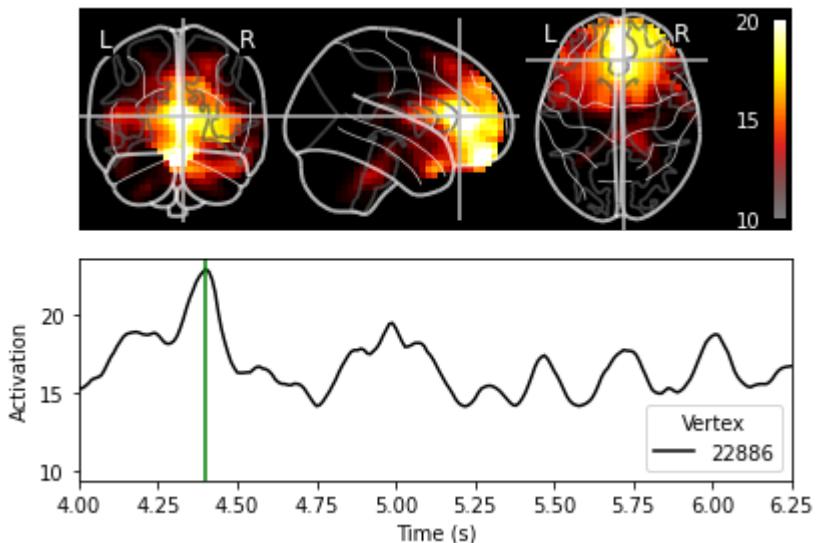
Showing: t = 4.300 s, (30.0, 55.0, 5.0) mm, [22, 34, 16] vox, 21736 vertex



theta recall manipulation 4.4

Fixing initial time: 4.4 sec

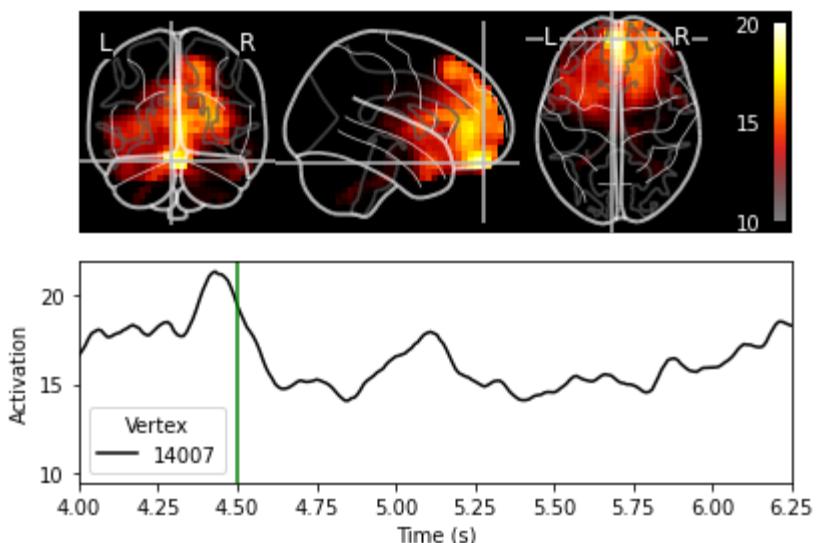
Showing: t = 4.400 s, (5.0, 35.0, 10.0) mm, [17, 30, 17] vox, 22886 vertex



theta recall manipulation 4.5

Fixing initial time: 4.5 sec

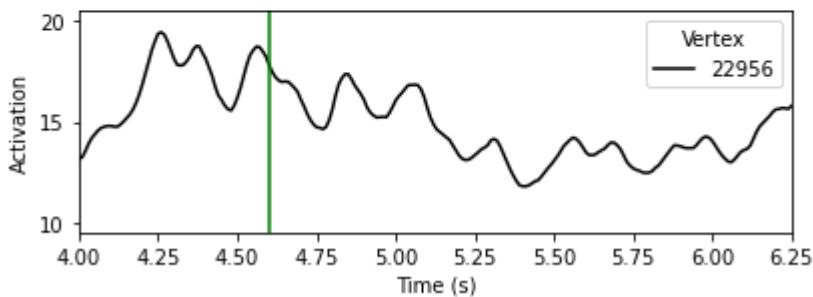
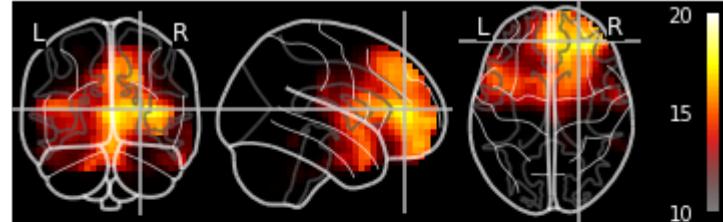
Showing: t = 4.500 s, (-5.0, 55.0, -25.0) mm, [15, 34, 10] vox, 14007
vertex



theta recall manipulation 4.6

Fixing initial time: 4.6 sec

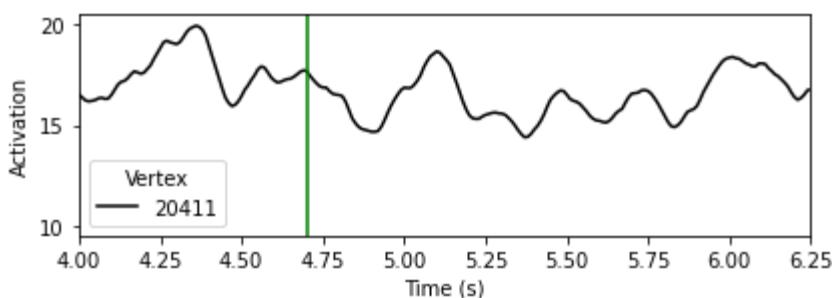
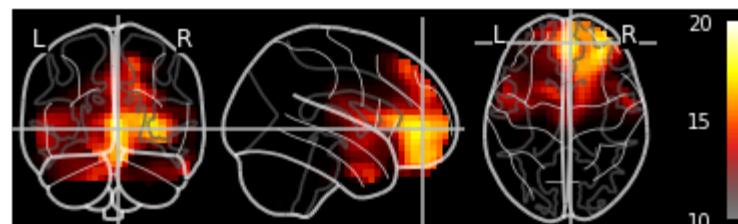
Showing: t = 4.600 s, (25.0, 45.0, 10.0) mm, [21, 32, 17] vox, 22956
vertex



theta recall manipulation 4.7

Fixing initial time: 4.7 sec

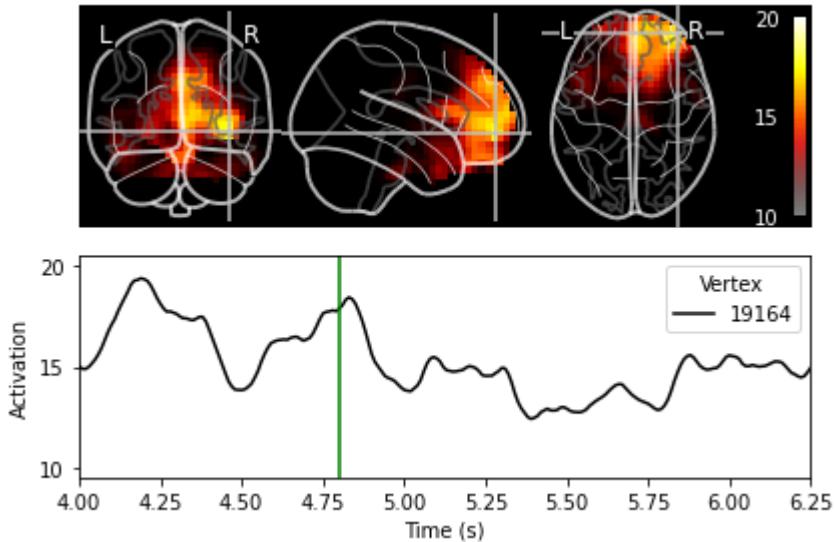
Showing: t = 4.700 s, (5.0, 50.0, -0.0) mm, [17, 33, 15] vox, 20411 vertex



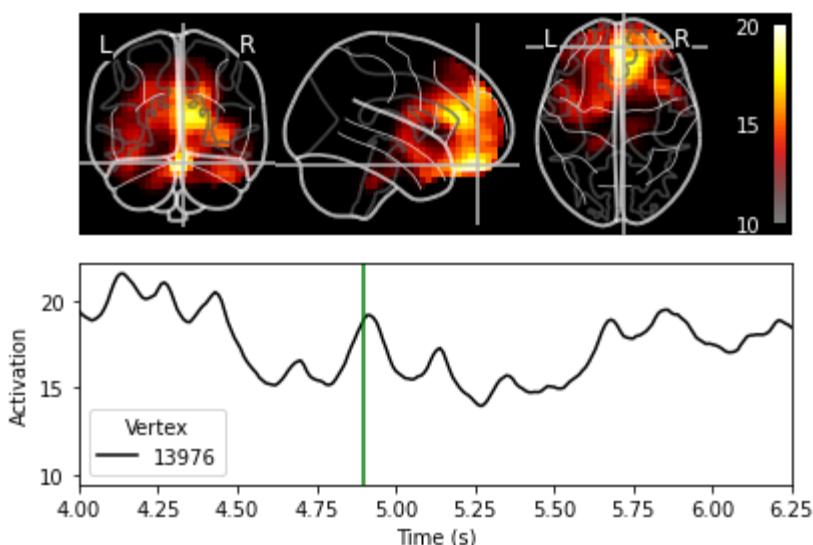
theta recall manipulation 4.8

Fixing initial time: 4.8 sec

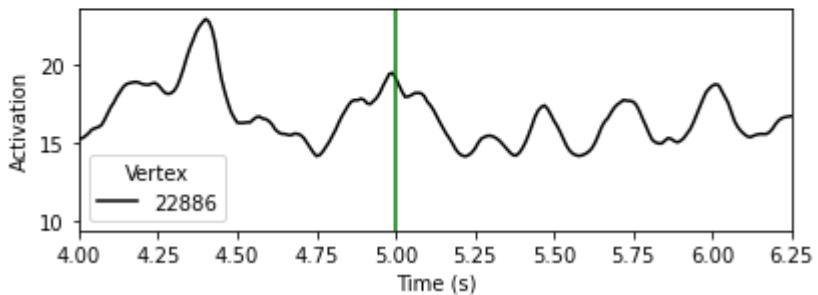
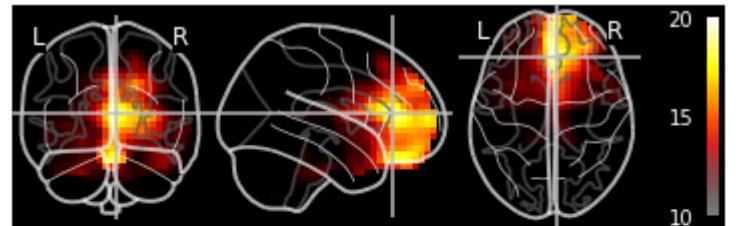
Showing: t = 4.800 s, (40.0, 55.0, -5.0) mm, [24, 34, 14] vox, 19164 vertex



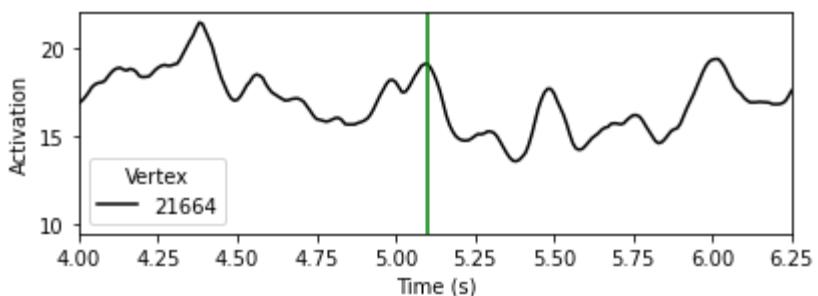
```
theta recall manipulation 4.9
Fixing initial time: 4.9 sec
Showing: t = 4.900 s, (5.0, 50.0, -25.0) mm, [17, 33, 10] vox, 13976
vertex
```



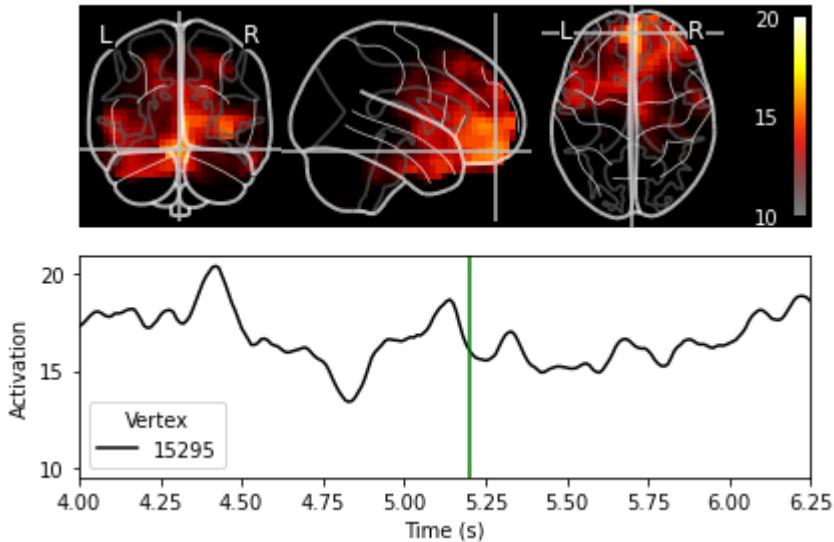
```
theta recall manipulation 5.0
Fixing initial time: 5.0 sec
Showing: t = 5.000 s, (5.0, 35.0, 10.0) mm, [17, 30, 17] vox, 22886 v
ertex
```



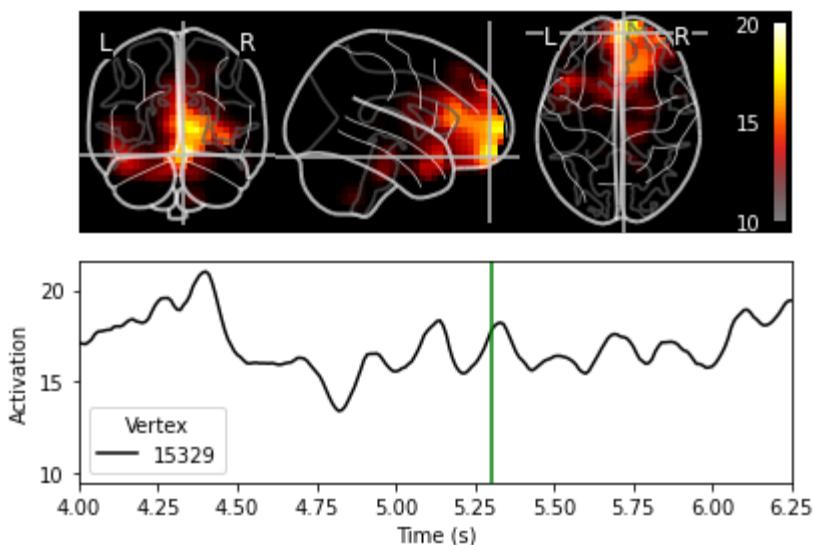
```
theta recall manipulation 5.1
Fixing initial time: 5.1 sec
Showing: t = 5.100 s, (0.0, 45.0, 5.0) mm, [16, 32, 16] vox, 21664 ve
rtex
```



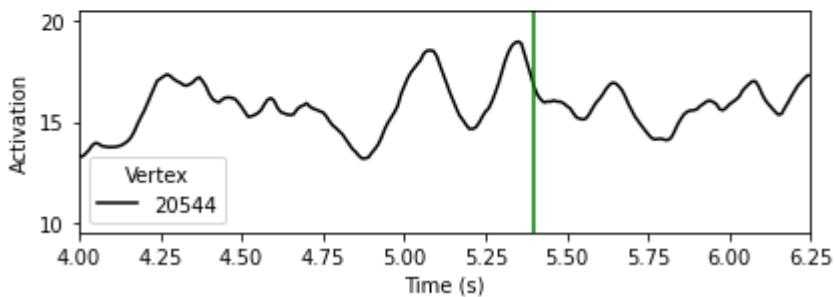
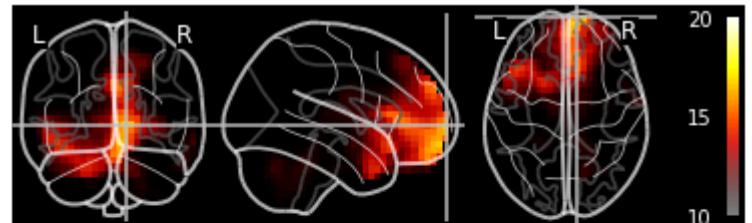
```
theta recall manipulation 5.2
Fixing initial time: 5.2 sec
Showing: t = 5.200 s, (0.0, 55.0, -20.0) mm, [16, 34, 11] vox, 15295 ve
rtex
```



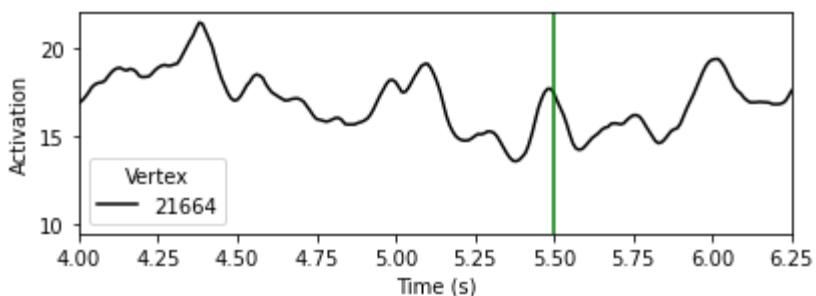
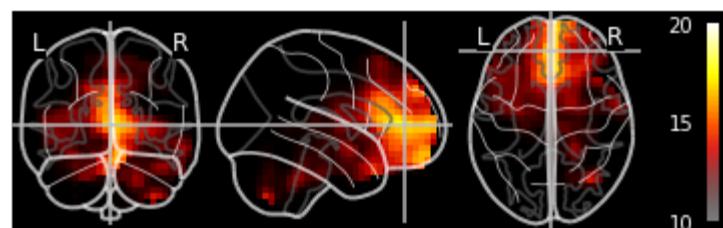
```
theta recall manipulation 5.3
Fixing initial time: 5.3 sec
Showing: t = 5.300 s, (5.0, 60.0, -20.0) mm, [17, 35, 11] vox, 15329
vertex
```



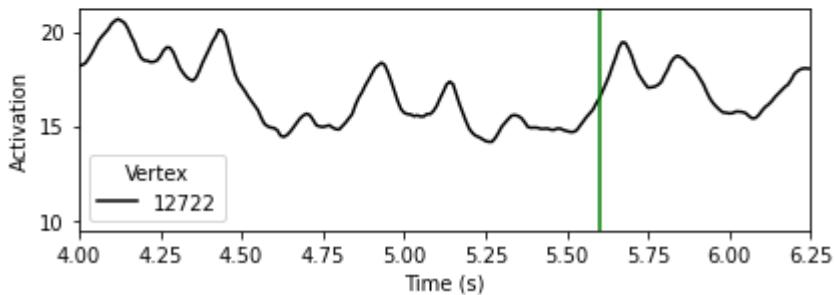
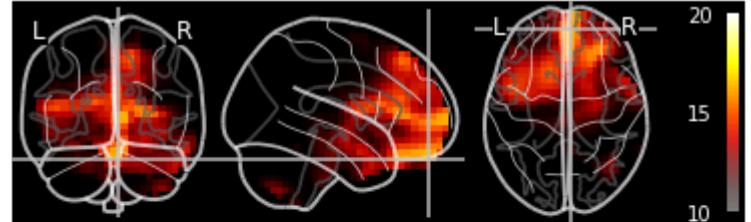
```
theta recall manipulation 5.4
Fixing initial time: 5.4 sec
Showing: t = 5.400 s, (10.0, 70.0, -0.0) mm, [18, 37, 15] vox, 20544
vertex
```



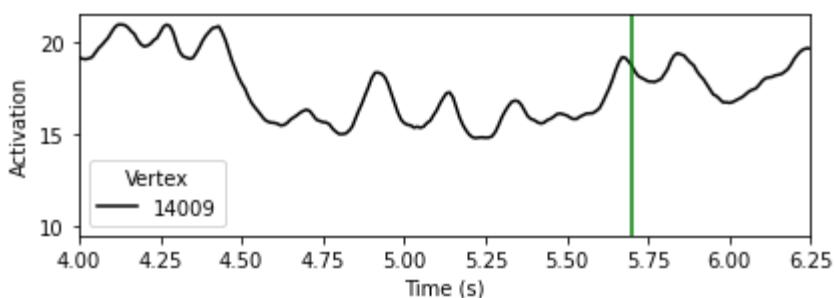
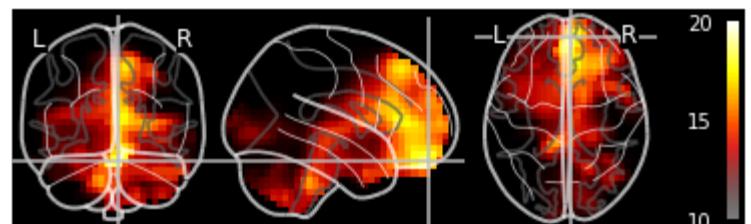
```
theta recall manipulation 5.5
Fixing initial time: 5.5 sec
Showing: t = 5.500 s, (0.0, 45.0, 5.0) mm, [16, 32, 16] vox, 21664 ve
rtex
```



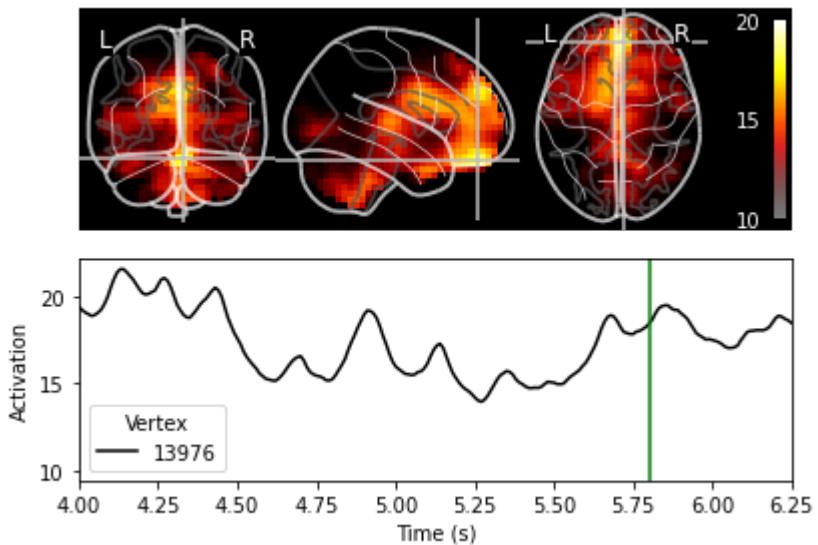
```
theta recall manipulation 5.6
Fixing initial time: 5.6 sec
Showing: t = 5.600 s, (5.0, 55.0, -30.0) mm, [17, 34, 9] vox, 12722 ve
rtex
```



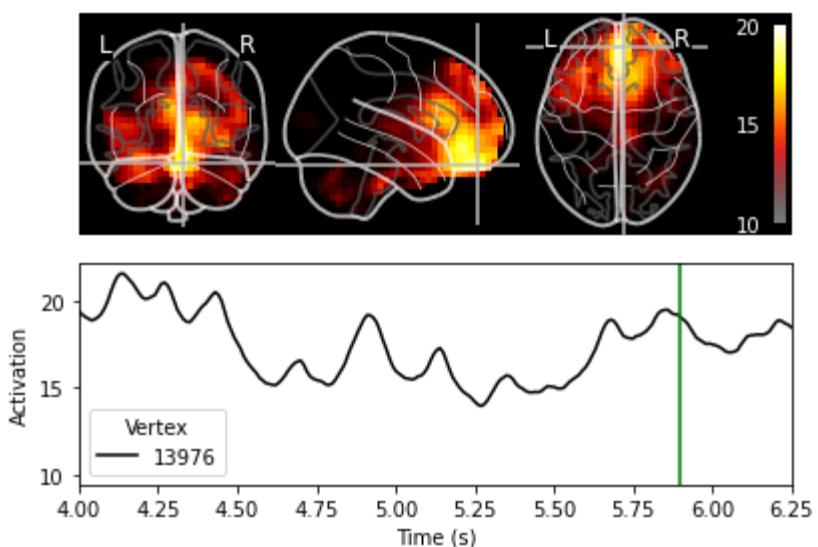
```
theta recall manipulation 5.7
Fixing initial time: 5.7 sec
Showing: t = 5.700 s, (5.0, 55.0, -25.0) mm, [17, 34, 10] vox, 14009
vertex
```



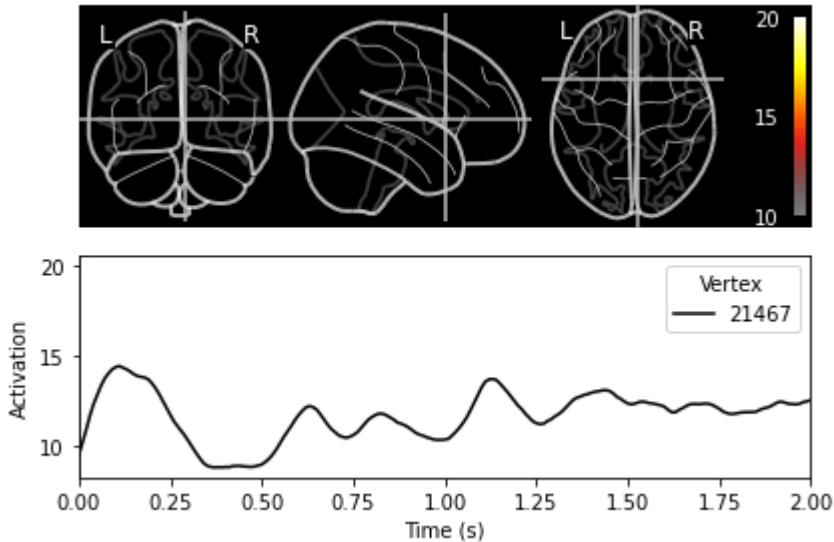
```
theta recall manipulation 5.8
Fixing initial time: 5.8 sec
Showing: t = 5.800 s, (5.0, 50.0, -25.0) mm, [17, 33, 10] vox, 13976
vertex
```



```
theta recall manipulation 5.9
Fixing initial time: 5.9 sec
Showing: t = 5.900 s, (5.0, 50.0, -25.0) mm, [17, 33, 10] vox, 13976
vertex
```



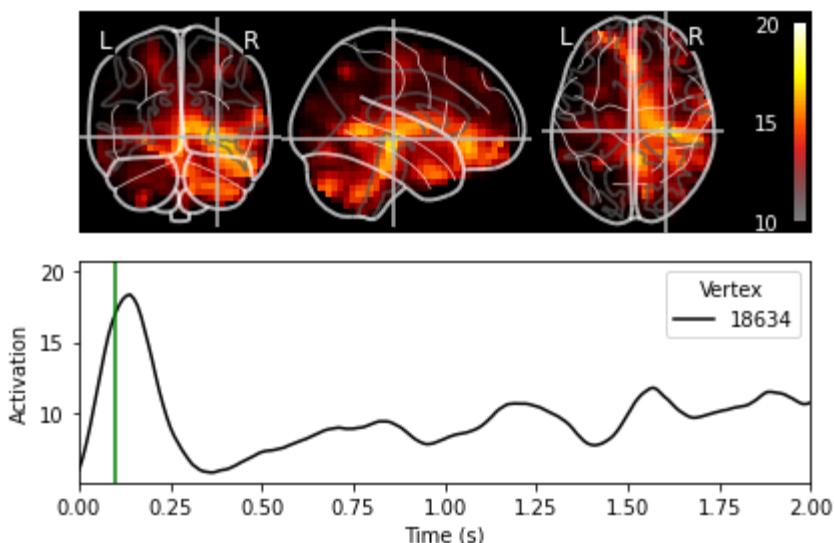
```
alpha encoding manipulation 0.0
Fixing initial time: 0.0 sec
Showing: t = 0.000 s, (5.0, 15.0, 5.0) mm, [17, 26, 16] vox, 21467
vertex
```



alpha encoding manipulation 0.1

Fixing initial time: 0.1 sec

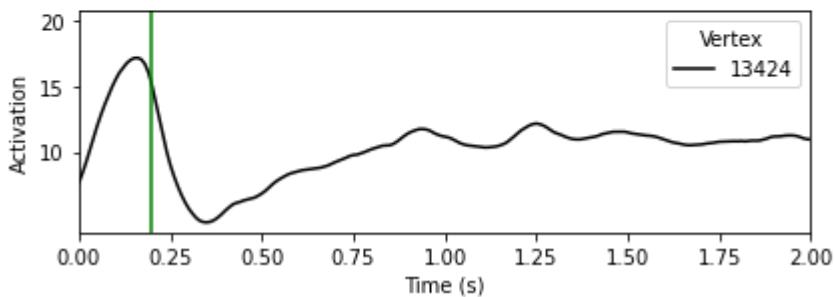
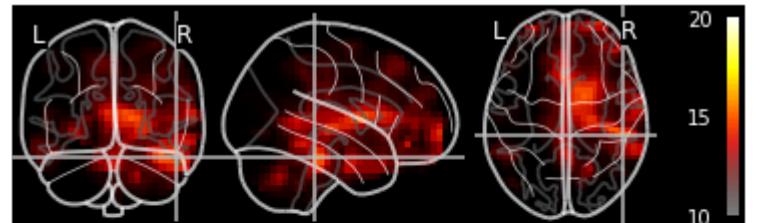
Showing: t = 0.100 s, (30.0, -25.0, -5.0) mm, [22, 18, 14] vox, 18634
vertex



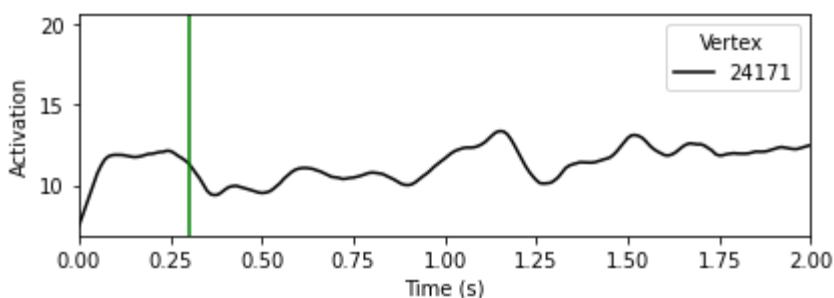
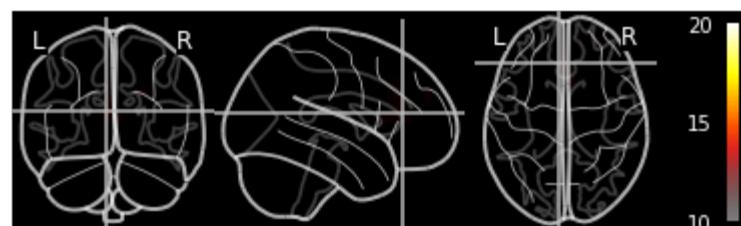
alpha encoding manipulation 0.2

Fixing initial time: 0.2 sec

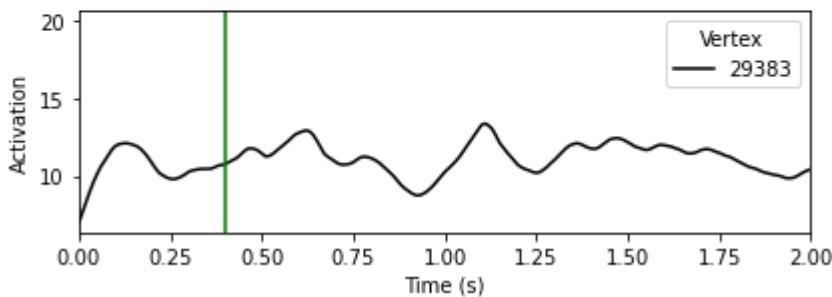
Showing: t = 0.200 s, (50.0, -35.0, -25.0) mm, [26, 16, 10] vox, 1342
4 vertex



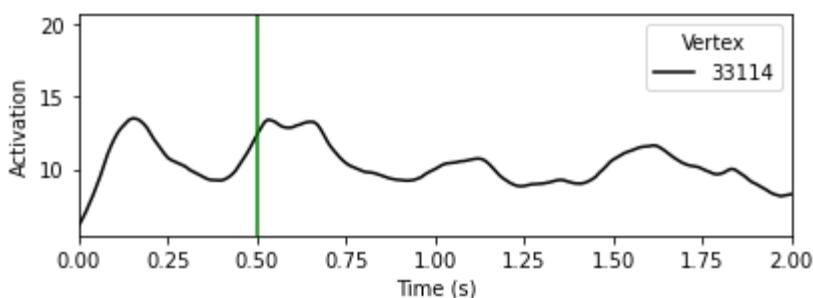
```
alpha encoding manipulation 0.30000000000000004
Fixing initial time: 0.30000000000000004 sec
Showing: t = 0.300 s, (-5.0, 35.0, 15.0) mm, [15, 30, 18] vox, 24171
vertex
```



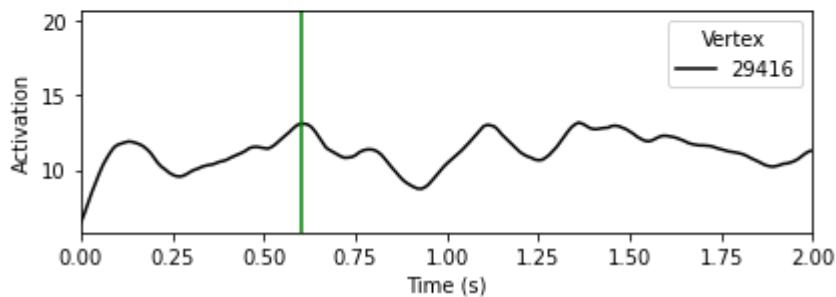
```
alpha encoding manipulation 0.4
Fixing initial time: 0.4 sec
Showing: t = 0.400 s, (-15.0, 45.0, 35.0) mm, [13, 32, 22] vox, 29383
vertex
```



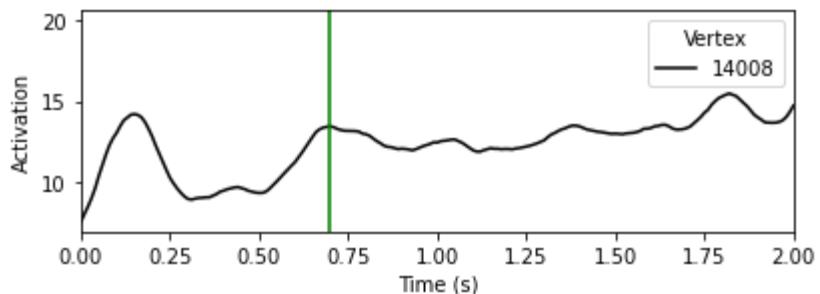
```
alpha encoding manipulation 0.5
Fixing initial time: 0.5 sec
Showing: t = 0.500 s, (-5.0, 25.0, 50.0) mm, [15, 28, 25] vox, 33114
vertex
```



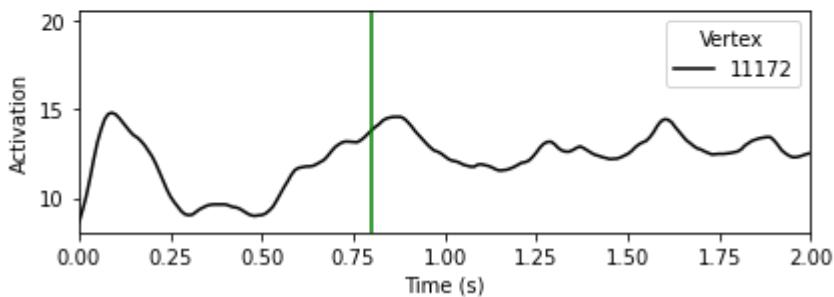
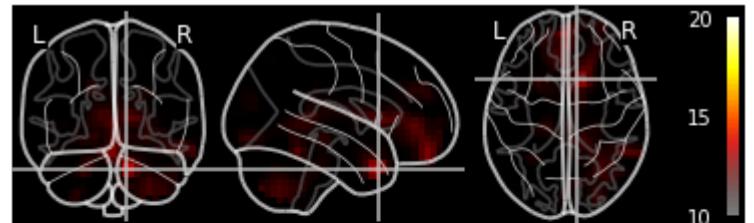
```
alpha encoding manipulation 0.6000000000000001
Fixing initial time: 0.6000000000000001 sec
Showing: t = 0.600 s, (-15.0, 50.0, 35.0) mm, [13, 33, 22] vox, 29416
vertex
```



```
alpha encoding manipulation 0.7000000000000001
Fixing initial time: 0.7000000000000001 sec
Showing: t = 0.700 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



```
alpha encoding manipulation 0.8
Fixing initial time: 0.8 sec
Showing: t = 0.800 s, (10.0, 15.0, -35.0) mm, [18, 26, 8] vox, 11172
vertex
```

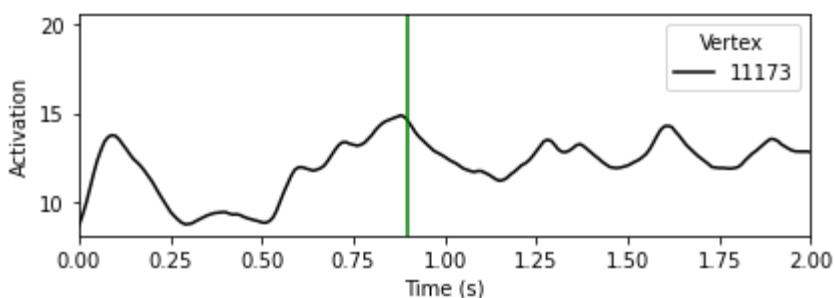


alpha encoding manipulation 0.9

Fixing initial time: 0.9 sec

Showing: t = 0.900 s, (15.0, 15.0, -35.0) mm, [19, 26, 8] vox, 11173

vertex

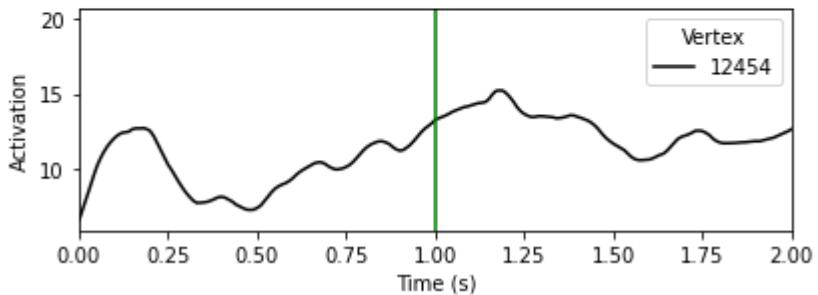
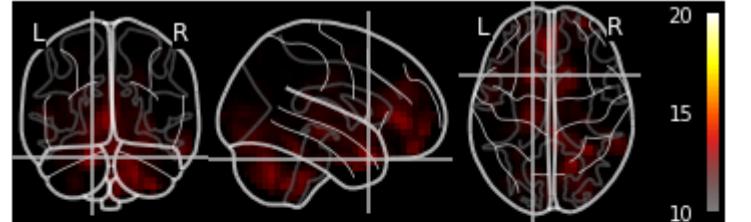


alpha encoding manipulation 1.0

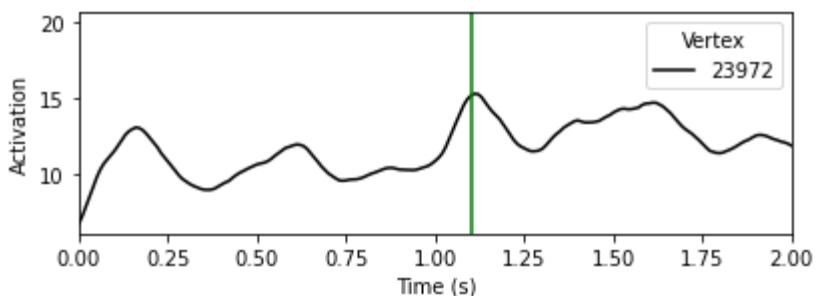
Fixing initial time: 1.0 sec

Showing: t = 1.000 s, (-15.0, 15.0, -30.0) mm, [13, 26, 9] vox, 12454

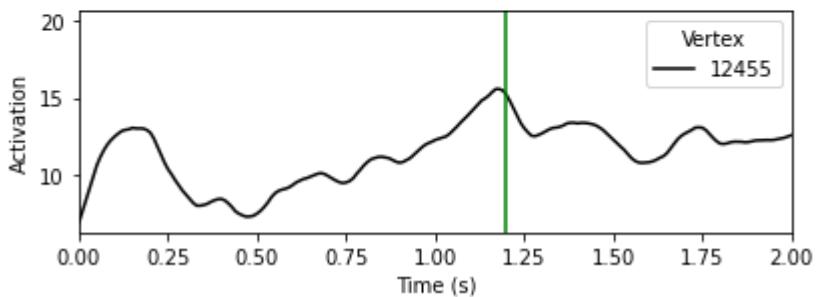
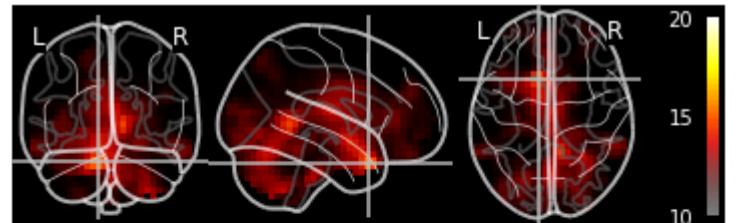
vertex



```
alpha encoding manipulation 1.1
Fixing initial time: 1.1 sec
Showing: t = 1.100 s, (-10.0, 5.0, 15.0) mm, [14, 24, 18] vox, 23972
vertex
```



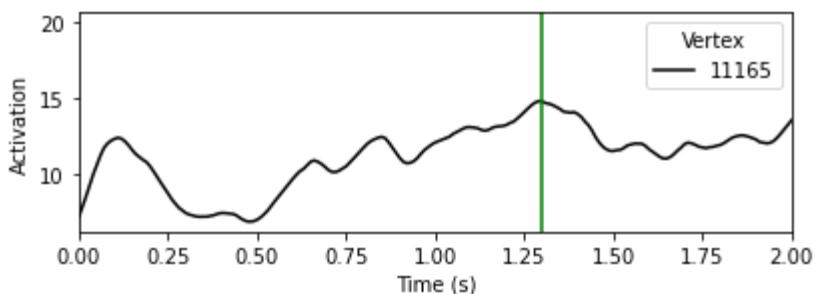
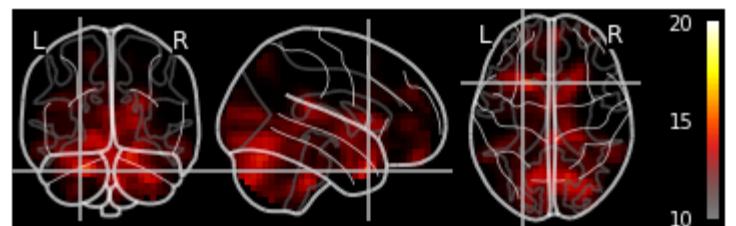
```
alpha encoding manipulation 1.2000000000000002
Fixing initial time: 1.2000000000000002 sec
Showing: t = 1.200 s, (-10.0, 15.0, -30.0) mm, [14, 26, 9] vox, 12455
vertex
```



alpha encoding manipulation 1.3

Fixing initial time: 1.3 sec

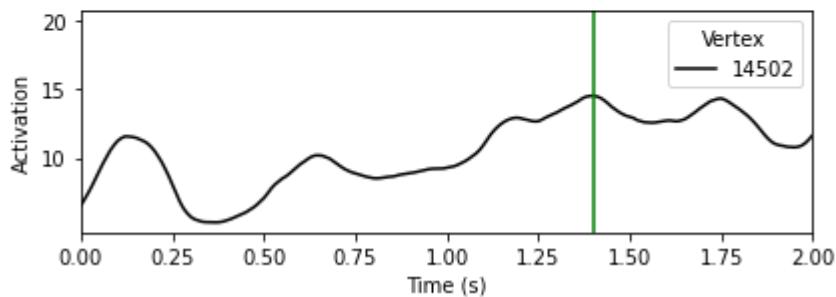
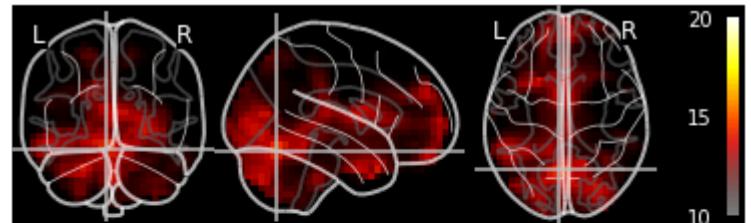
Showing: t = 1.300 s, (-25.0, 15.0, -35.0) mm, [11, 26, 8] vox, 11165 vertex



alpha encoding manipulation 1.4000000000000001

Fixing initial time: 1.4000000000000001 sec

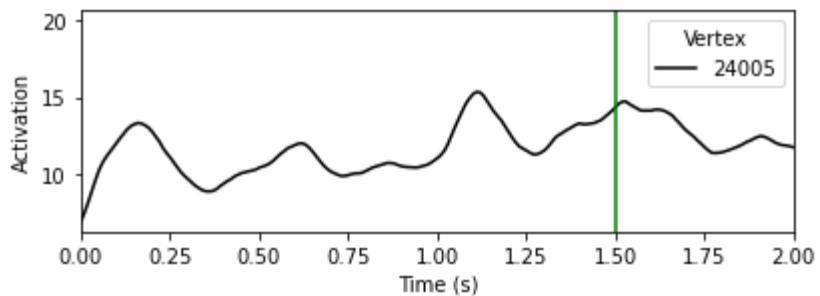
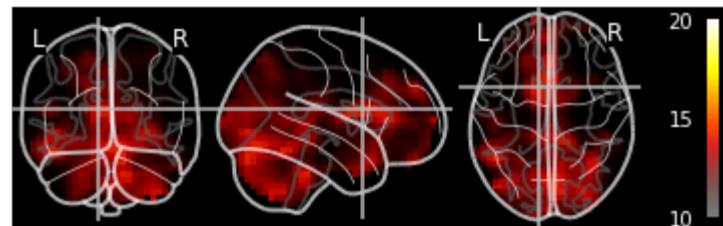
Showing: t = 1.400 s, (-5.0, -65.0, -20.0) mm, [15, 10, 11] vox, 1450 2 vertex



alpha encoding manipulation 1.5

Fixing initial time: 1.5 sec

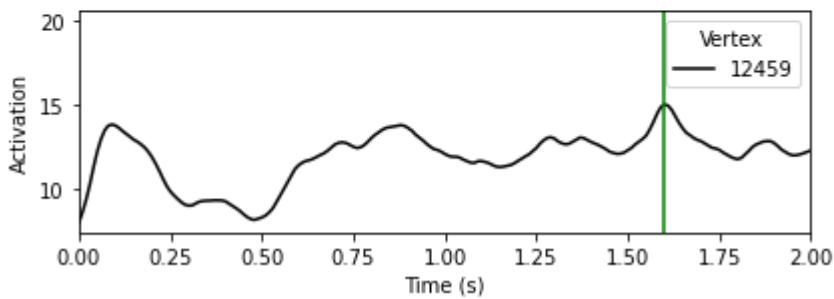
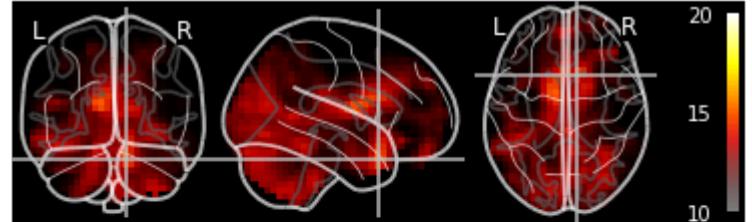
Showing: t = 1.500 s, (-10.0, 10.0, 15.0) mm, [14, 25, 18] vox, 24005 vertex



alpha encoding manipulation 1.6

Fixing initial time: 1.6 sec

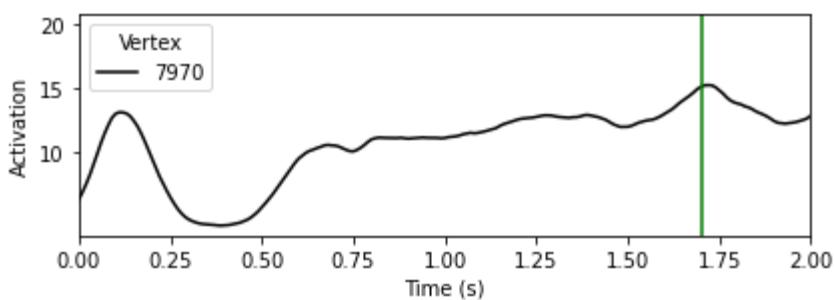
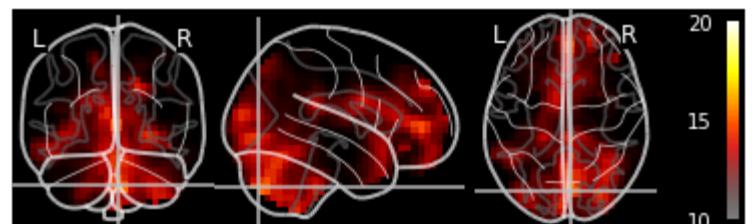
Showing: t = 1.600 s, (10.0, 15.0, -30.0) mm, [18, 26, 9] vox, 12459 vertex



alpha encoding manipulation 1.7000000000000002

Fixing initial time: 1.7000000000000002 sec

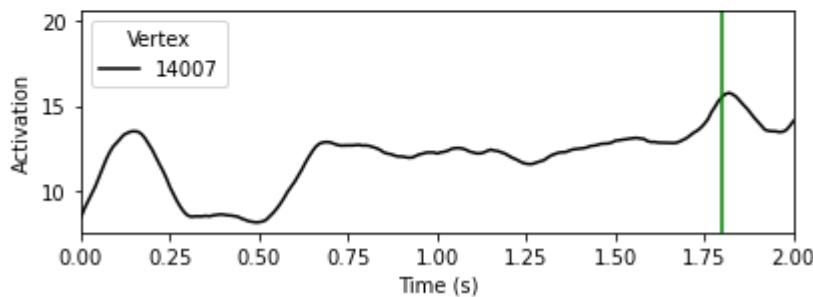
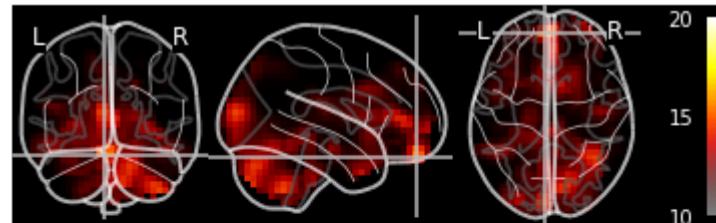
Showing: t = 1.700 s, (5.0, -80.0, -45.0) mm, [17, 7, 6] vox, 7970 vertex



alpha encoding manipulation 1.8

Fixing initial time: 1.8 sec

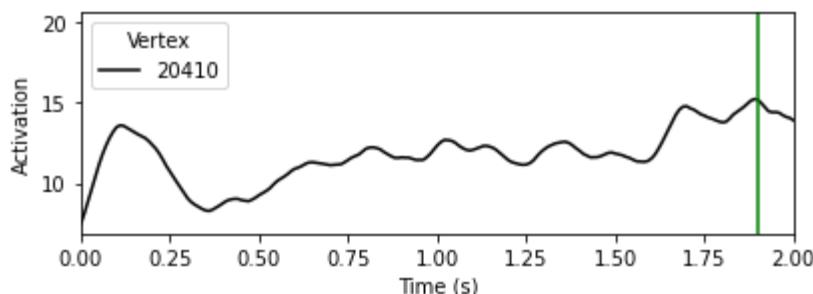
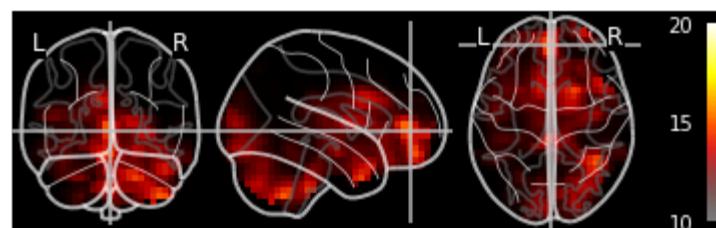
Showing: t = 1.800 s, (-5.0, 55.0, -25.0) mm, [15, 34, 10] vox, 14007 vertex



alpha encoding manipulation 1.9000000000000001

Fixing initial time: 1.9000000000000001 sec

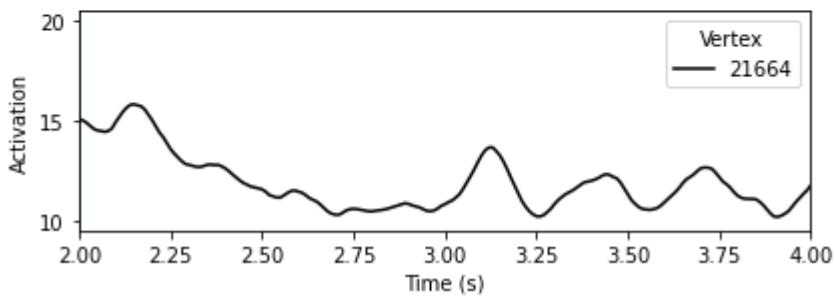
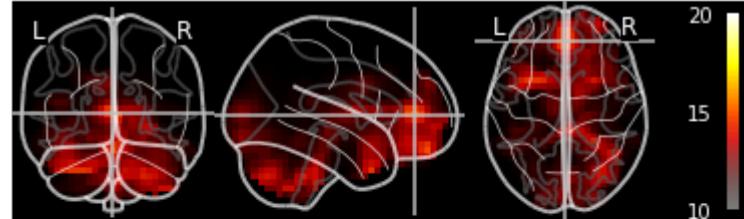
Showing: t = 1.900 s, (0.0, 50.0, -0.0) mm, [16, 33, 15] vox, 20410 vertex



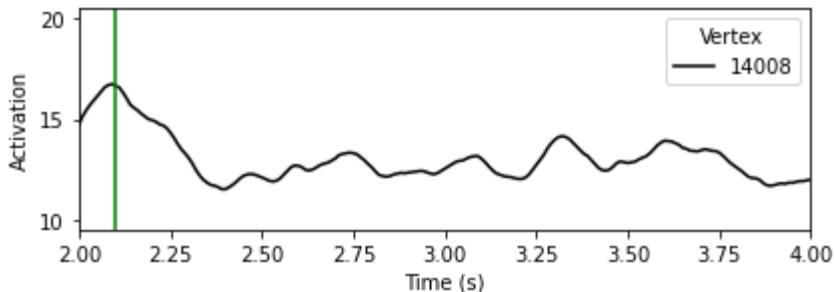
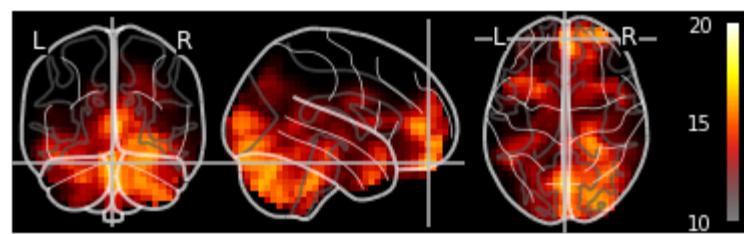
alpha delay manipulation 2.0

Fixing initial time: 2.0 sec

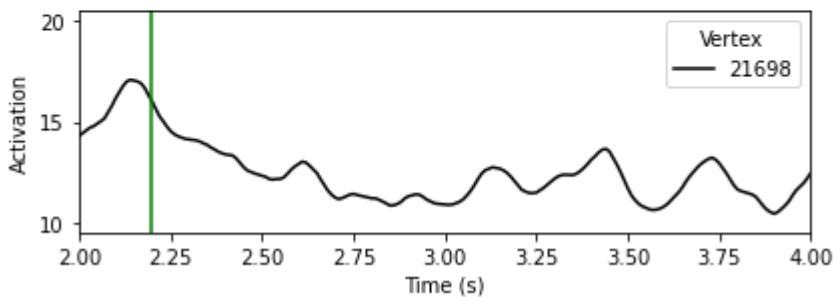
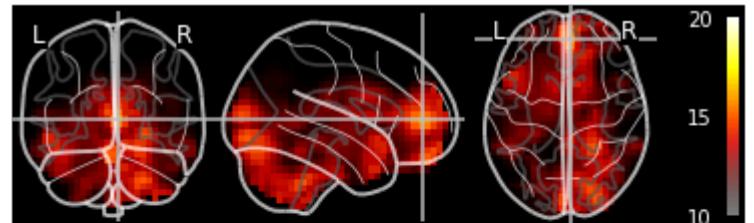
Showing: t = 2.000 s, (0.0, 45.0, 5.0) mm, [16, 32, 16] vox, 21664 vertex



```
alpha delay manipulation 2.1
Fixing initial time: 2.1 sec
Showing: t = 2.100 s, (0.0, 55.0, -25.0) mm, [16, 34, 10] vox, 14008
vertex
```



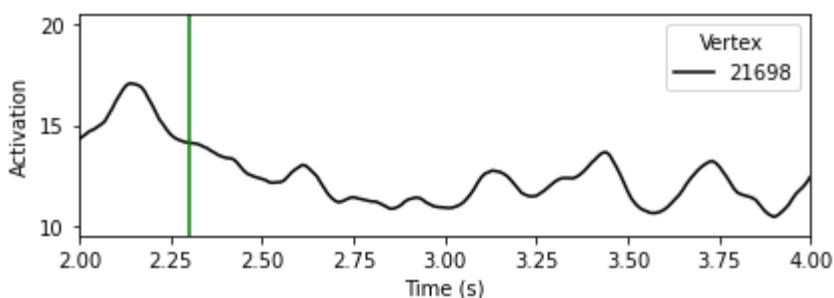
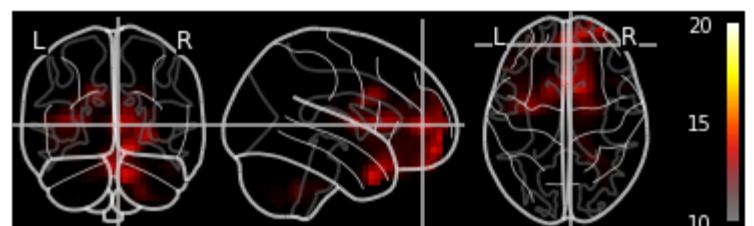
```
alpha delay manipulation 2.2
Fixing initial time: 2.2 sec
Showing: t = 2.200 s, (5.0, 50.0, 5.0) mm, [17, 33, 16] vox, 21698
vertex
```



alpha delay manipulation 2.3

Fixing initial time: 2.3 sec

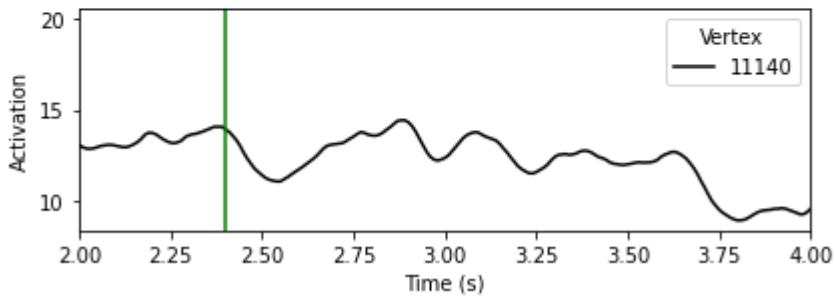
Showing: t = 2.300 s, (5.0, 50.0, 5.0) mm, [17, 33, 16] vox, 21698 vertex



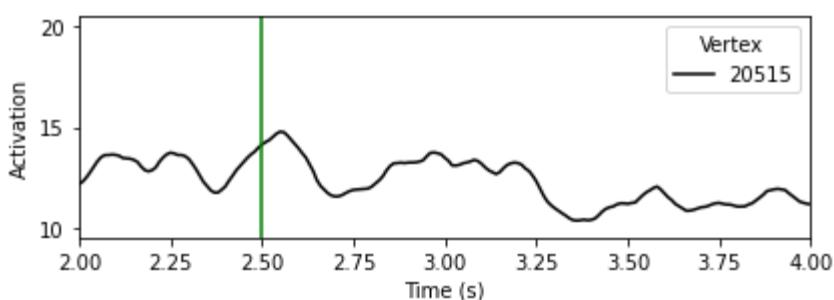
alpha delay manipulation 2.4

Fixing initial time: 2.4 sec

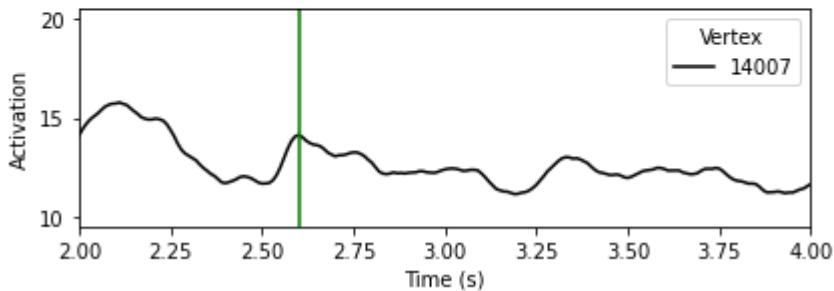
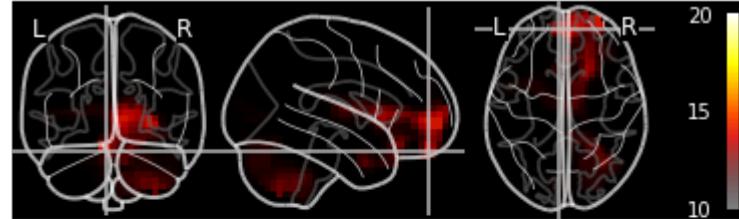
Showing: t = 2.400 s, (15.0, 10.0, -35.0) mm, [19, 25, 8] vox, 11140 vertex



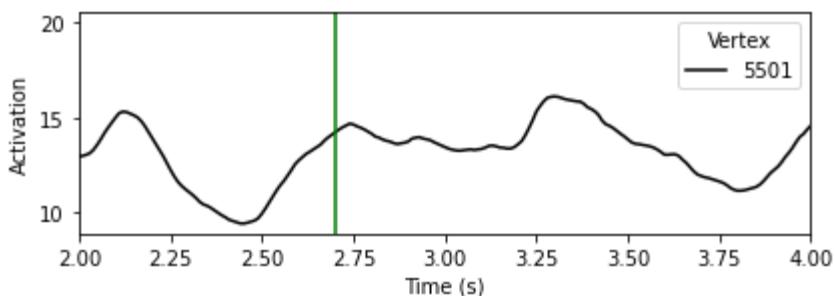
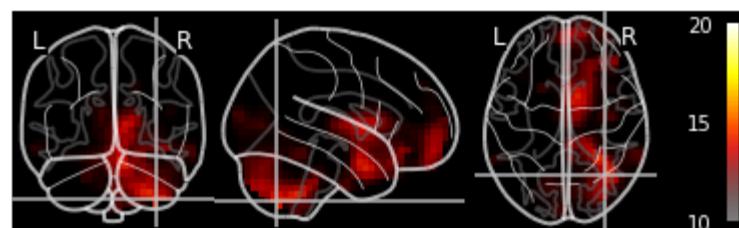
alpha delay manipulation 2.5
Fixing initial time: 2.5 sec
Showing: t = 2.500 s, (30.0, 65.0, -0.0) mm, [22, 36, 15] vox, 20515
vertex



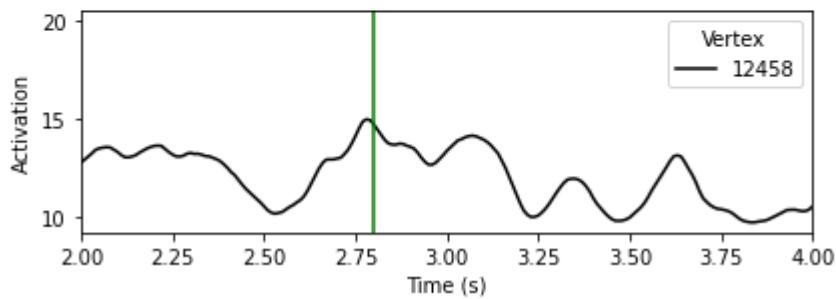
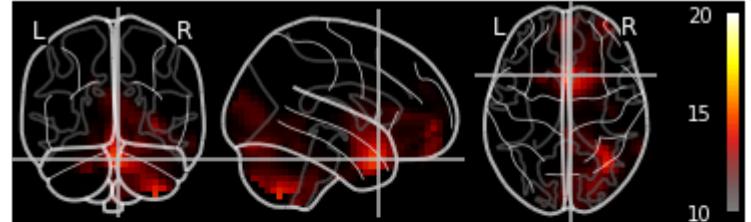
alpha delay manipulation 2.6
Fixing initial time: 2.6 sec
Showing: t = 2.600 s, (-5.0, 55.0, -25.0) mm, [15, 34, 10] vox, 14007
vertex



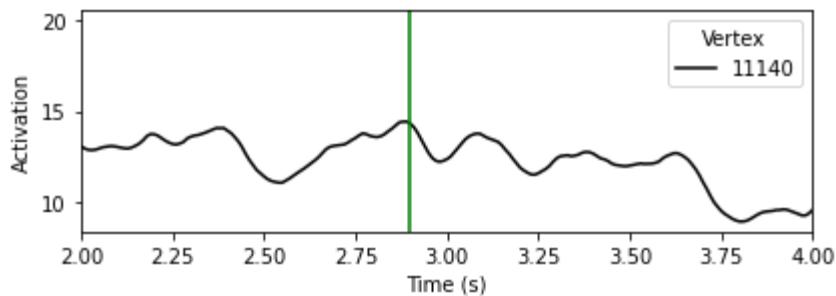
```
alpha delay manipulation 2.7
Fixing initial time: 2.7 sec
Showing: t = 2.700 s, (35.0, -65.0, -55.0) mm, [23, 10, 4] vox, 5501
vertex
```



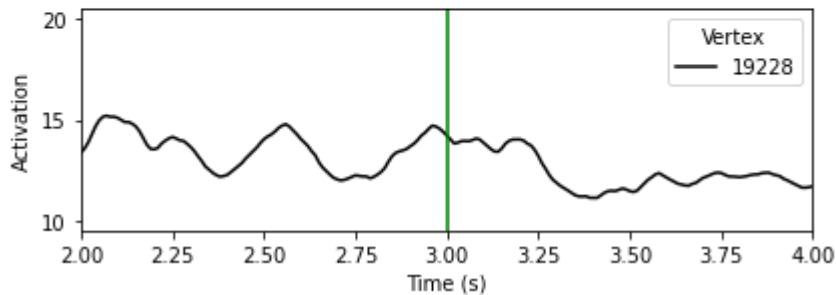
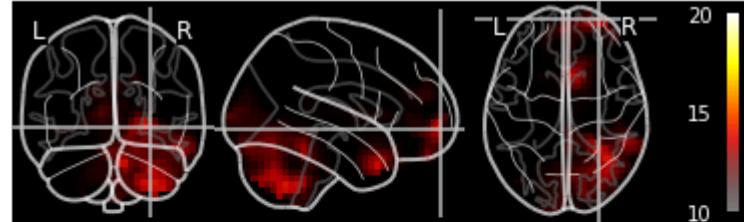
```
alpha delay manipulation 2.8
Fixing initial time: 2.8 sec
Showing: t = 2.800 s, (5.0, 15.0, -30.0) mm, [17, 26, 9] vox, 12458 v
ertex
```



alpha delay manipulation 2.9
Fixing initial time: 2.9 sec
Showing: t = 2.900 s, (15.0, 10.0, -35.0) mm, [19, 25, 8] vox, 11140
vertex



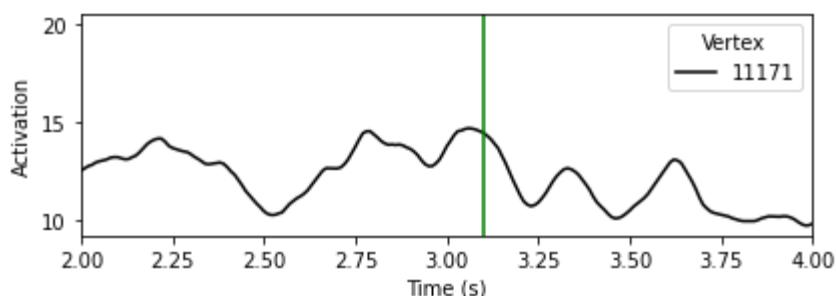
alpha delay manipulation 3.0
Fixing initial time: 3.0 sec
Showing: t = 3.000 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex



alpha delay manipulation 3.1

Fixing initial time: 3.1 sec

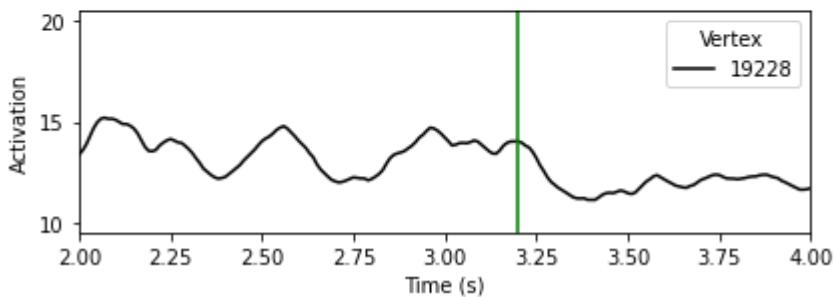
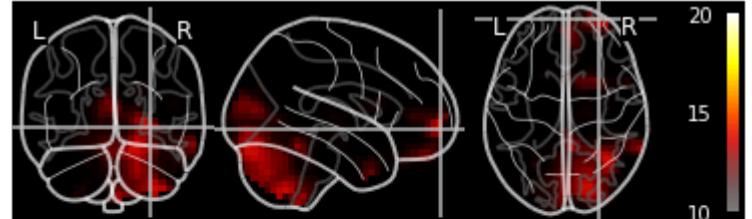
Showing: t = 3.100 s, (5.0, 15.0, -35.0) mm, [17, 26, 8] vox, 11171 vertex



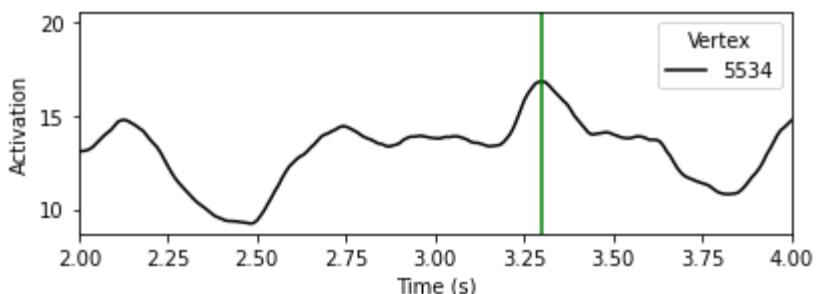
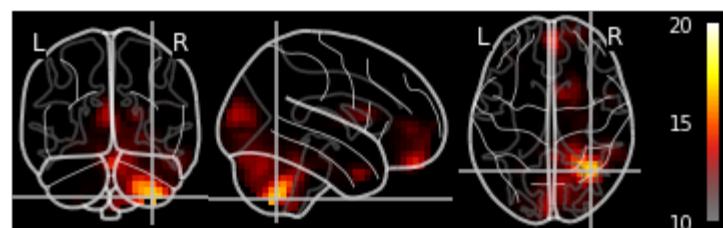
alpha delay manipulation 3.2

Fixing initial time: 3.2 sec

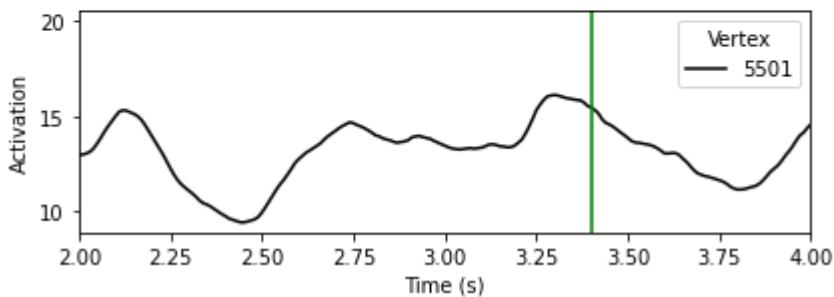
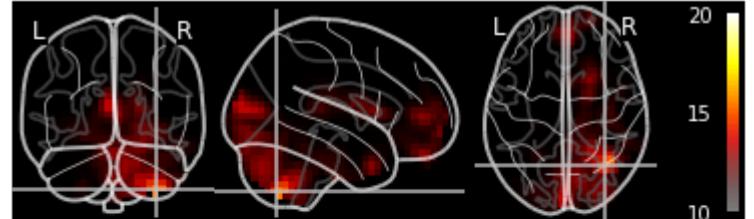
Showing: t = 3.200 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228 vertex



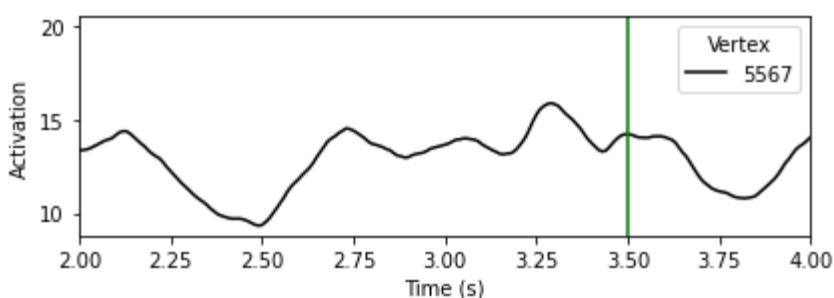
```
alpha delay manipulation 3.3
Fixing initial time: 3.3 sec
Showing: t = 3.300 s, (35.0, -60.0, -55.0) mm, [23, 11, 4] vox, 5534
vertex
```



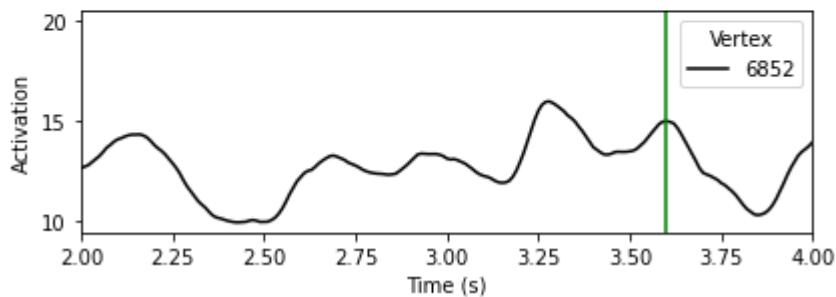
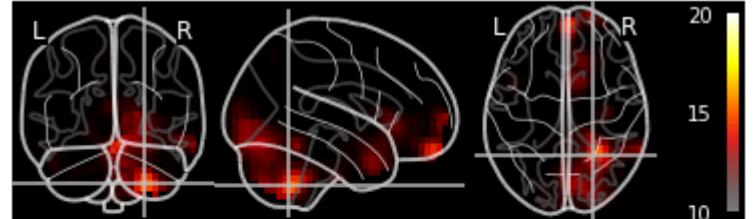
```
alpha delay manipulation 3.4000000000000004
Fixing initial time: 3.4000000000000004 sec
Showing: t = 3.400 s, (35.0, -65.0, -55.0) mm, [23, 10, 4] vox, 5501
vertex
```



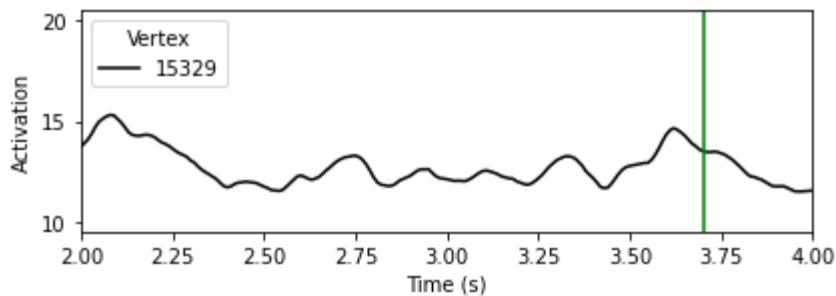
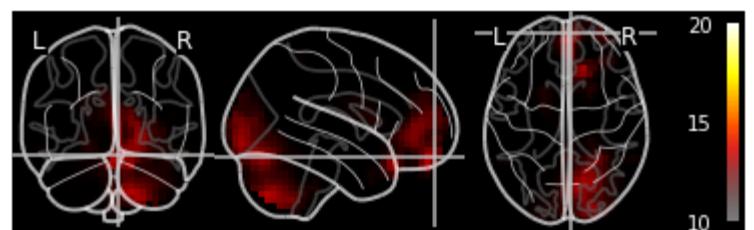
alpha delay manipulation 3.5
Fixing initial time: 3.5 sec
Showing: t = 3.500 s, (35.0, -55.0, -55.0) mm, [23, 12, 4] vox, 5567 vertex



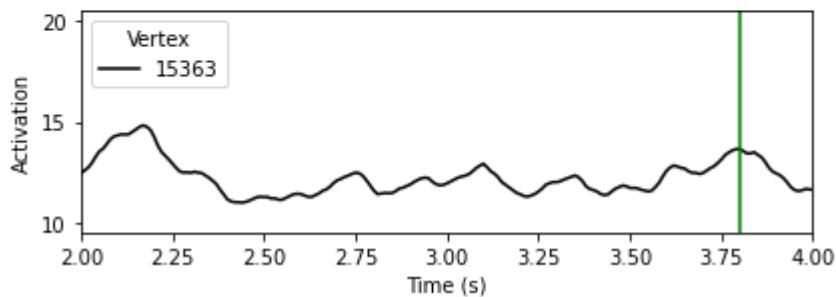
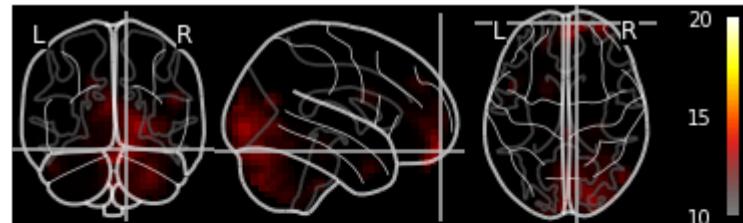
alpha delay manipulation 3.6
Fixing initial time: 3.6 sec
Showing: t = 3.600 s, (25.0, -55.0, -50.0) mm, [21, 12, 5] vox, 6852 vertex



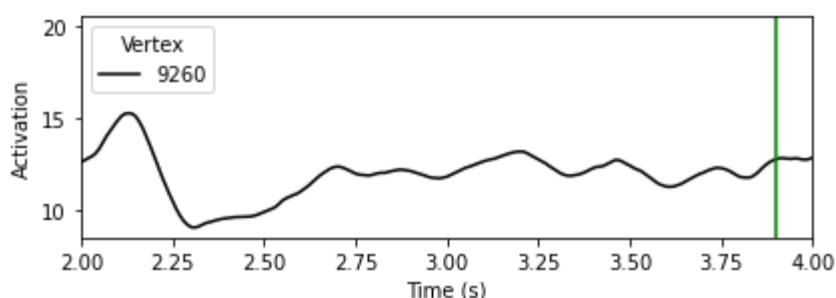
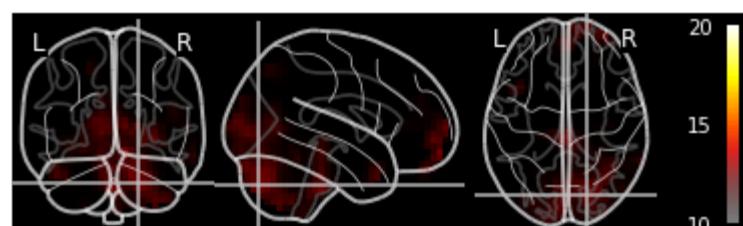
alpha delay manipulation 3.7
Fixing initial time: 3.7 sec
Showing: t = 3.700 s, (5.0, 60.0, -20.0) mm, [17, 35, 11] vox, 15329
vertex



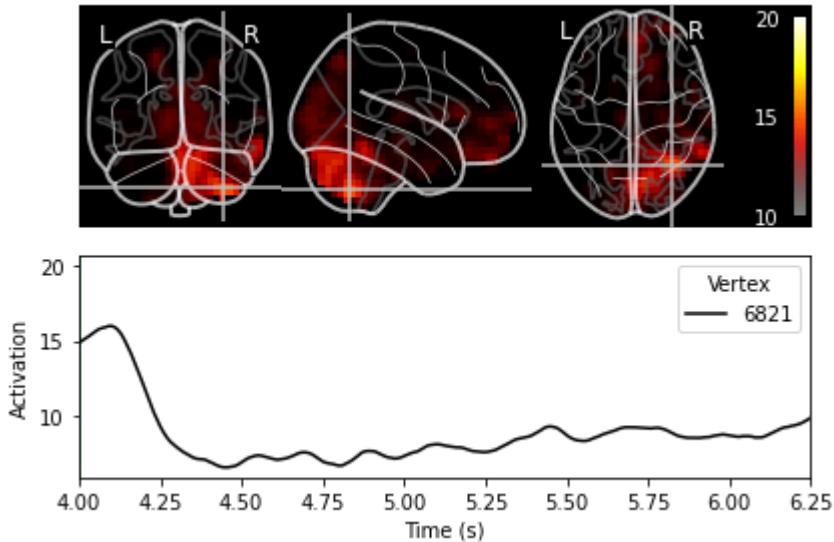
alpha delay manipulation 3.8
Fixing initial time: 3.8 sec
Showing: t = 3.800 s, (10.0, 65.0, -20.0) mm, [18, 36, 11] vox, 15363
vertex



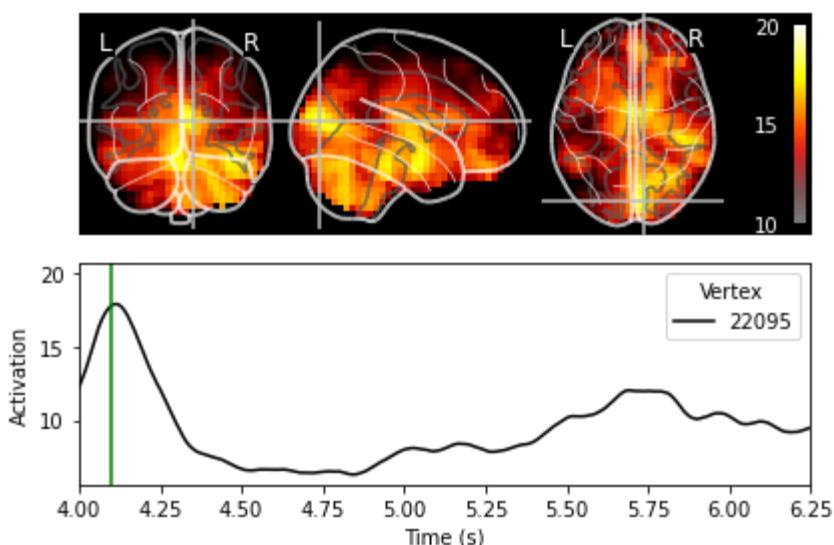
```
alpha delay manipulation 3.9000000000000004
Fixing initial time: 3.9000000000000004 sec
Showing: t = 3.900 s, (20.0, -80.0, -40.0) mm, [20, 7, 7] vox, 9260 v
ertex
```



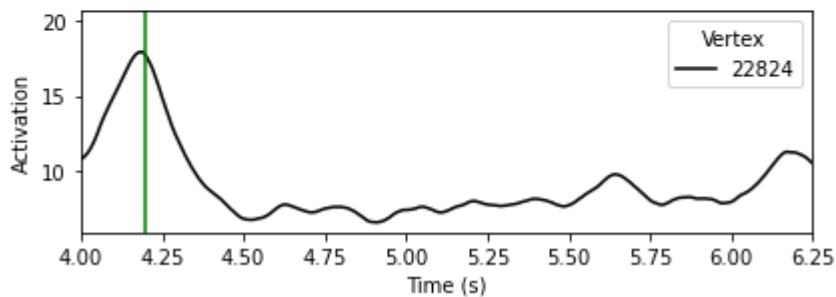
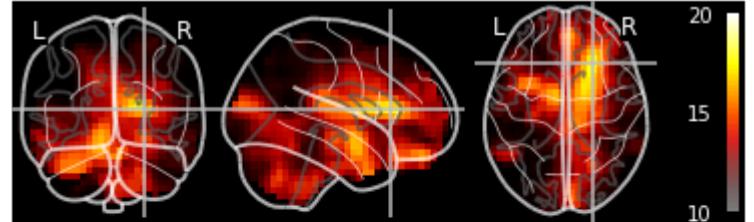
```
alpha recall manipulation 4.0
Fixing initial time: 4.0 sec
Showing: t = 4.000 s, (35.0, -60.0, -50.0) mm, [23, 11, 5] vox, 6821 v
ertex
```



```
alpha recall manipulation 4.1
Fixing initial time: 4.1 sec
Showing: t = 4.100 s, (10.0, -85.0, 10.0) mm, [18, 6, 17] vox, 22095
vertex
```



```
alpha recall manipulation 4.2
Fixing initial time: 4.2 sec
Showing: t = 4.200 s, (25.0, 25.0, 10.0) mm, [21, 28, 17] vox, 22824
vertex
```

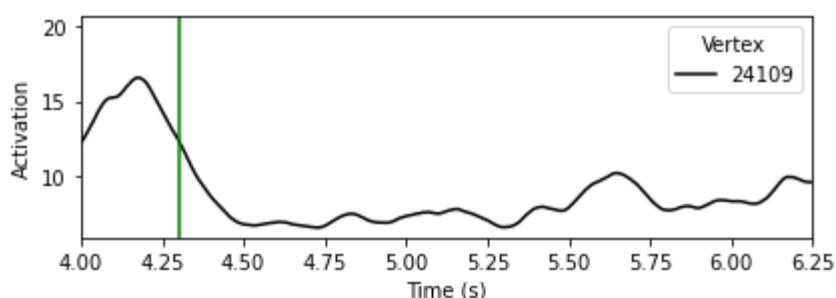


alpha recall manipulation 4.3

Fixing initial time: 4.3 sec

Showing: t = 4.300 s, (15.0, 25.0, 15.0) mm, [19, 28, 18] vox, 24109

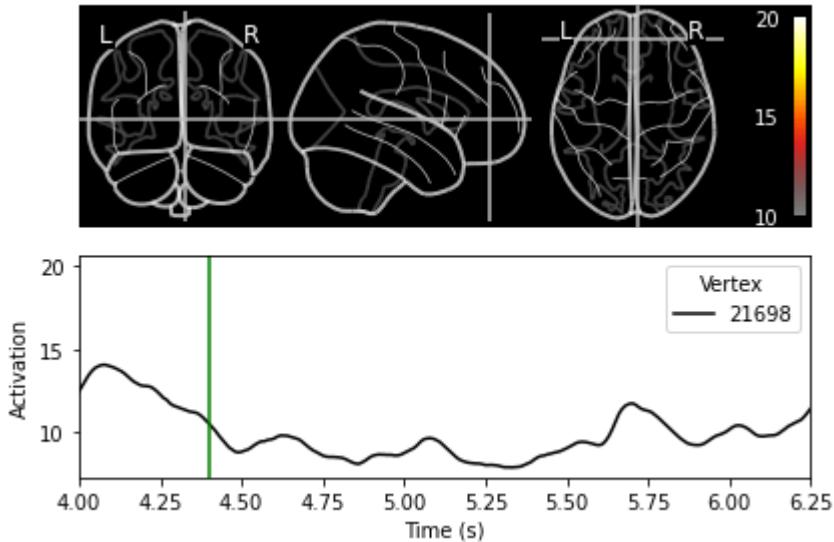
vertex



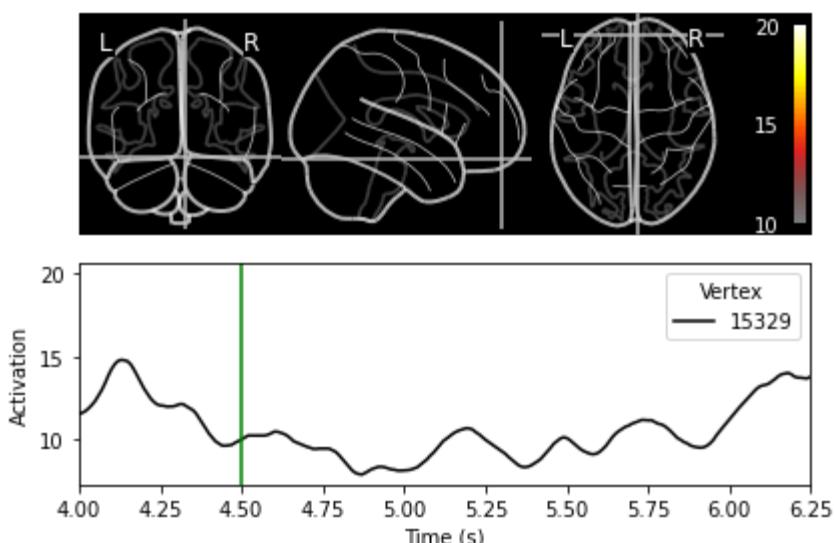
alpha recall manipulation 4.4

Fixing initial time: 4.4 sec

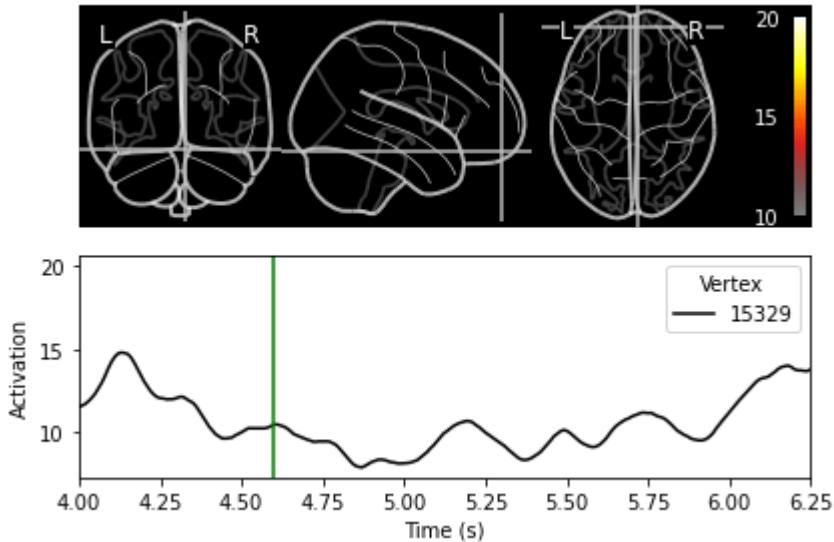
Showing: t = 4.400 s, (5.0, 50.0, 5.0) mm, [17, 33, 16] vox, 21698 vertex



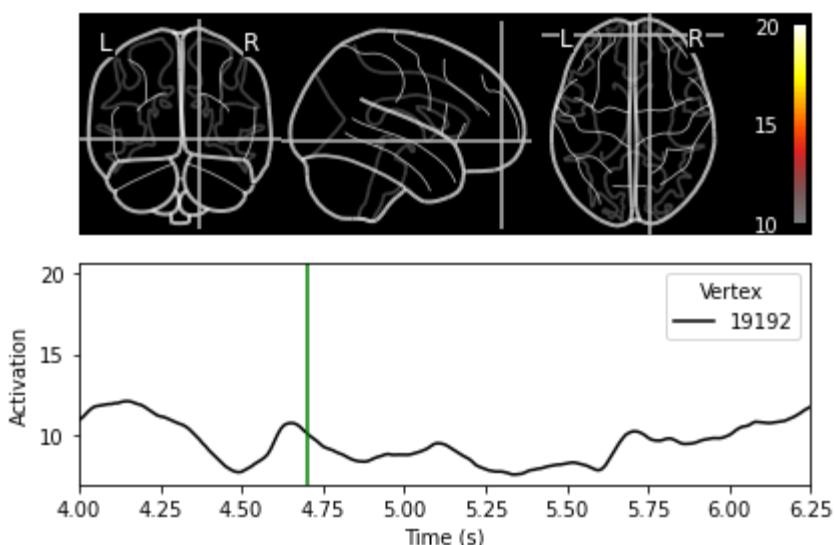
alpha recall manipulation 4.5
Fixing initial time: 4.5 sec
Showing: t = 4.500 s, (5.0, 60.0, -20.0) mm, [17, 35, 11] vox, 15329
vertex



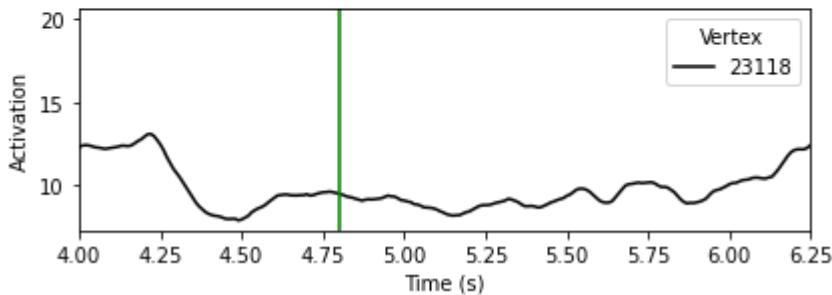
alpha recall manipulation 4.6
Fixing initial time: 4.6 sec
Showing: t = 4.600 s, (5.0, 60.0, -20.0) mm, [17, 35, 11] vox, 15329
vertex



```
alpha recall manipulation 4.7
Fixing initial time: 4.7 sec
Showing: t = 4.700 s, (15.0, 60.0, -5.0) mm, [19, 35, 14] vox, 19192
vertex
```



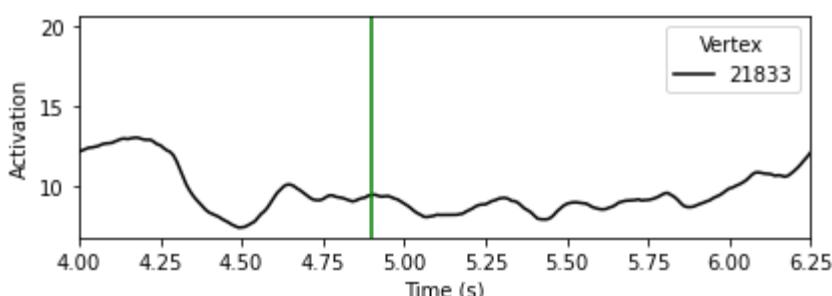
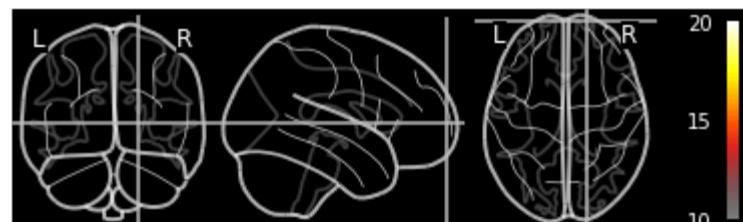
```
alpha recall manipulation 4.8
Fixing initial time: 4.8 sec
Showing: t = 4.800 s, (10.0, 70.0, 10.0) mm, [18, 37, 17] vox, 23118
vertex
```



alpha recall manipulation 4.9

Fixing initial time: 4.9 sec

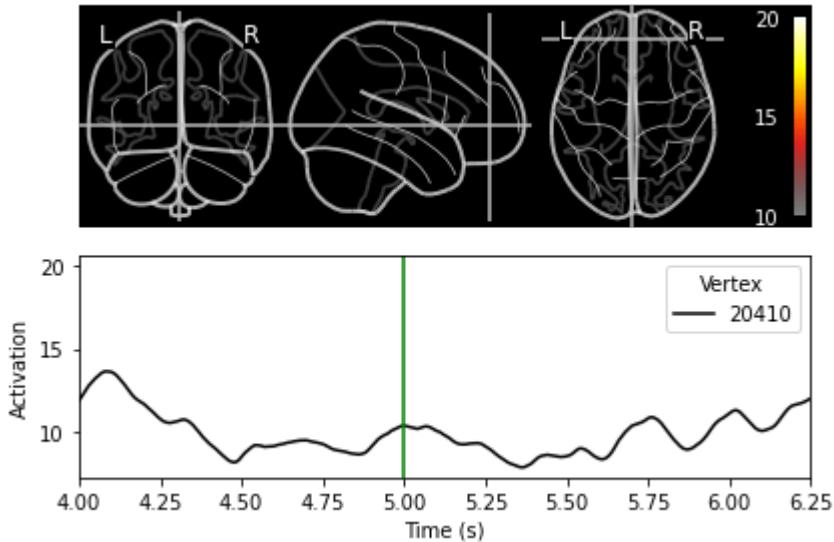
Showing: t = 4.900 s, (20.0, 70.0, 5.0) mm, [20, 37, 16] vox, 21833 vertex



alpha recall manipulation 5.0

Fixing initial time: 5.0 sec

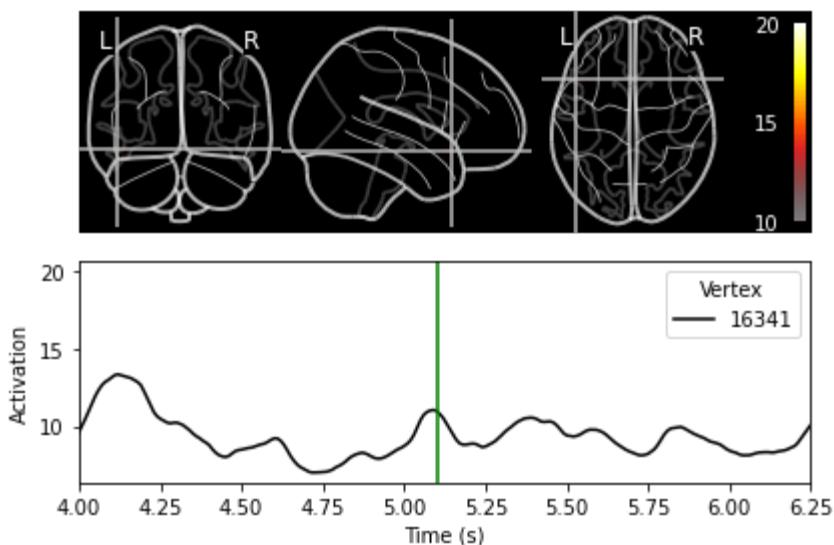
Showing: t = 5.000 s, (0.0, 50.0, -0.0) mm, [16, 33, 15] vox, 20410 vertex



alpha recall manipulation 5.1

Fixing initial time: 5.1 sec

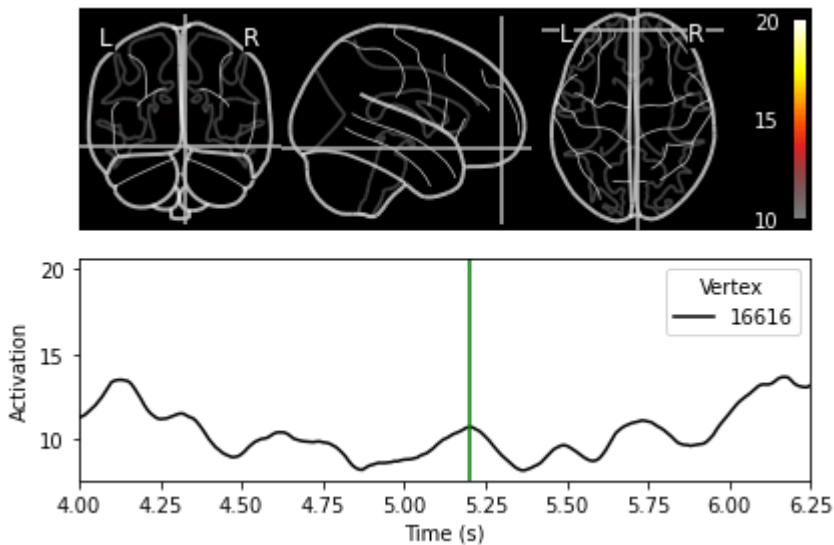
Showing: t = 5.100 s, (-50.0, 20.0, -15.0) mm, [6, 27, 12] vox, 16341
vertex



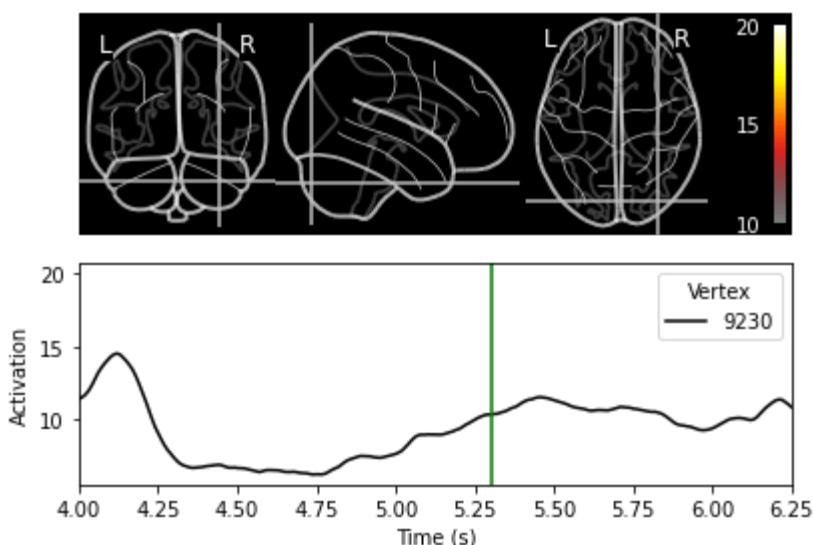
alpha recall manipulation 5.2

Fixing initial time: 5.2 sec

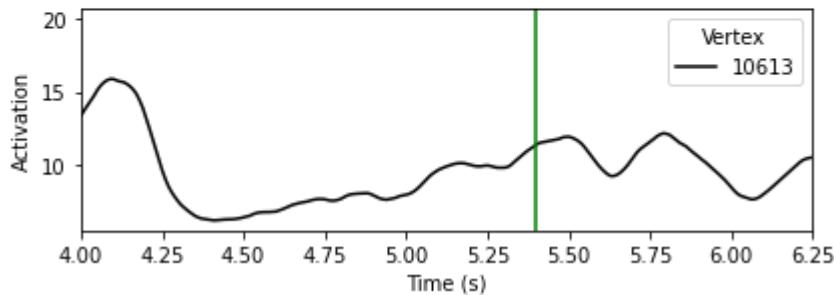
Showing: t = 5.200 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616
vertex



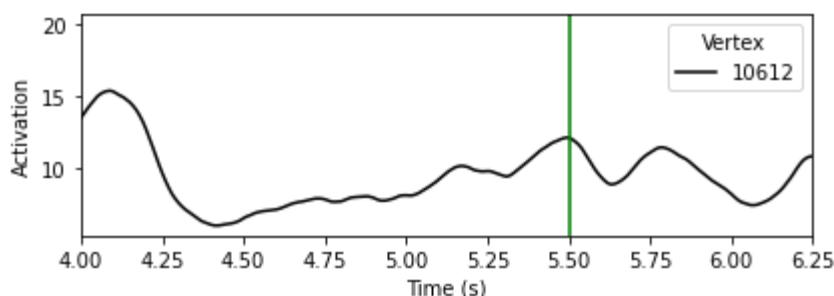
alpha recall manipulation 5.3
Fixing initial time: 5.3 sec
Showing: t = 5.300 s, (35.0, -85.0, -40.0) mm, [23, 6, 7] vox, 9230 vertex



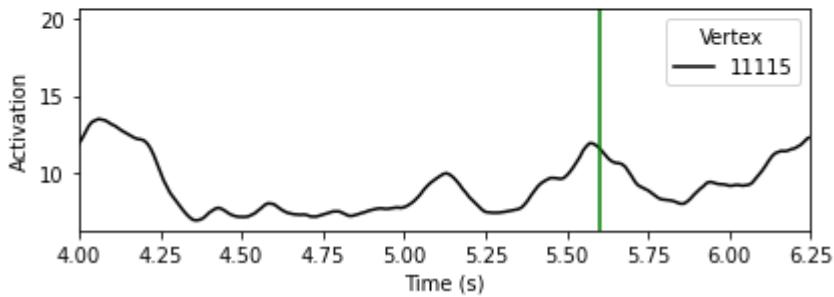
alpha recall manipulation 5.4
Fixing initial time: 5.4 sec
Showing: t = 5.400 s, (20.0, -70.0, -35.0) mm, [20, 9, 8] vox, 10613 vertex



```
alpha recall manipulation 5.5
Fixing initial time: 5.5 sec
Showing: t = 5.500 s, (15.0, -70.0, -35.0) mm, [19, 9, 8] vox, 10612
vertex
```



```
alpha recall manipulation 5.6
Fixing initial time: 5.6 sec
Showing: t = 5.600 s, (55.0, 5.0, -35.0) mm, [27, 24, 8] vox, 11115 v
ertex
```

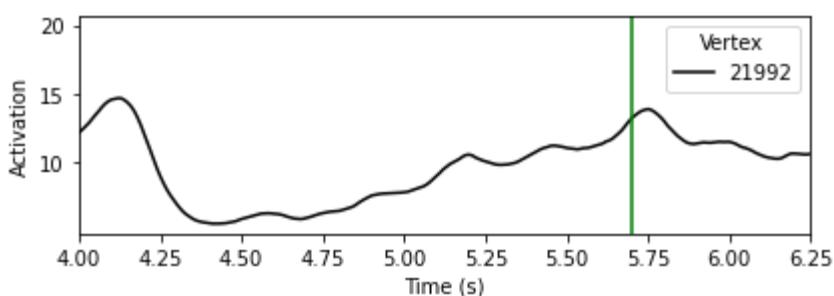


alpha recall manipulation 5.7

Fixing initial time: 5.7 sec

Showing: t = 5.700 s, (-10.0, -100.0, 10.0) mm, [14, 3, 17] vox, 2199

2 vertex

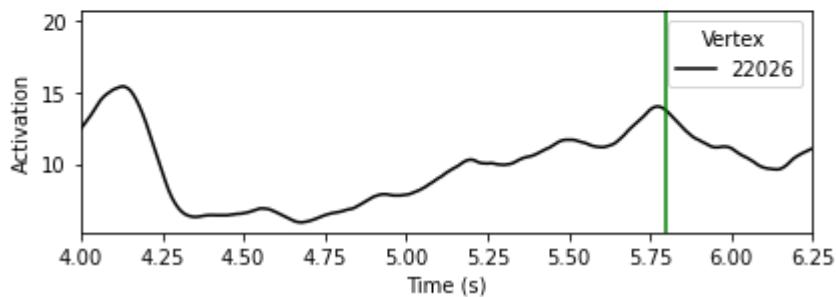


alpha recall manipulation 5.8

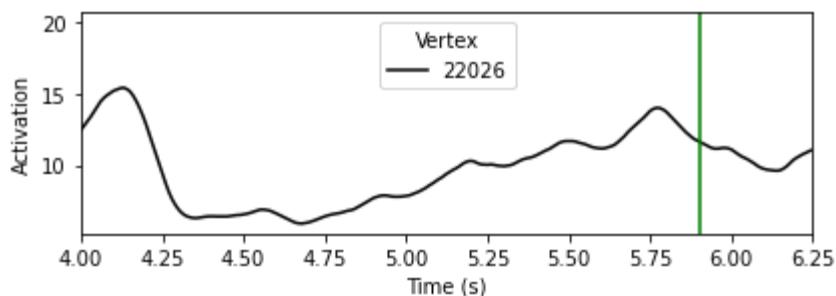
Fixing initial time: 5.8 sec

Showing: t = 5.800 s, (-5.0, -95.0, 10.0) mm, [15, 4, 17] vox, 22026

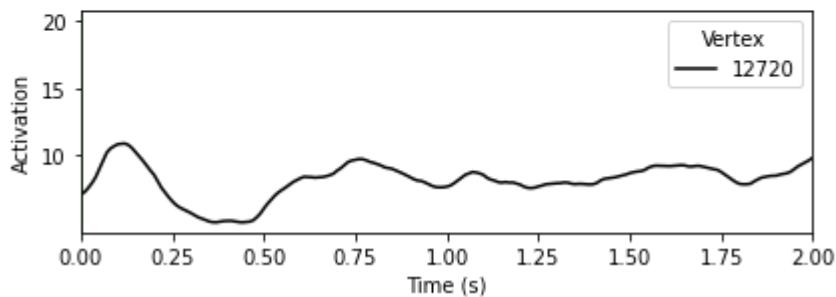
vertex



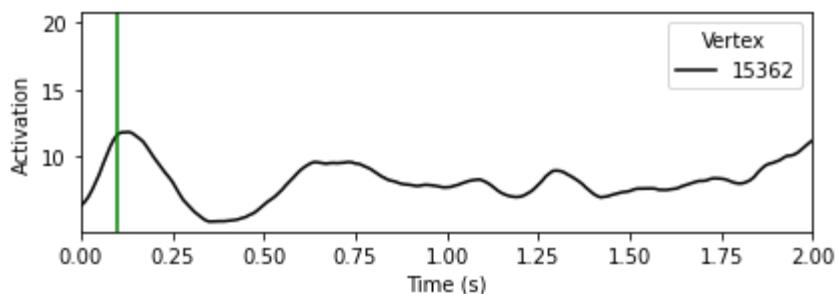
```
alpha recall manipulation 5.9
Fixing initial time: 5.9 sec
Showing: t = 5.900 s, (-5.0, -95.0, 10.0) mm, [15, 4, 17] vox, 22026
vertex
```



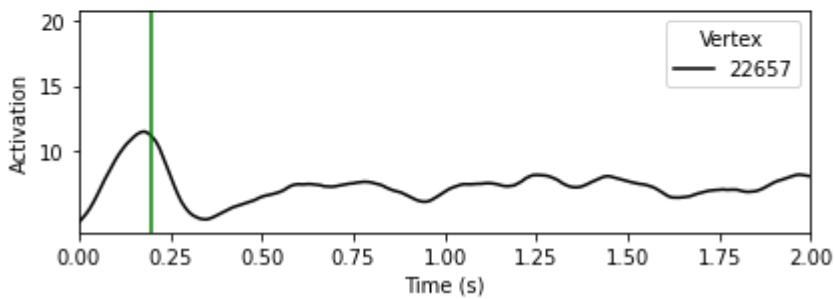
```
beta1 encoding manipulation 0.0
Fixing initial time: 0.0 sec
Showing: t = 0.000 s, (-5.0, 55.0, -30.0) mm, [15, 34, 9] vox, 12720
vertex
```



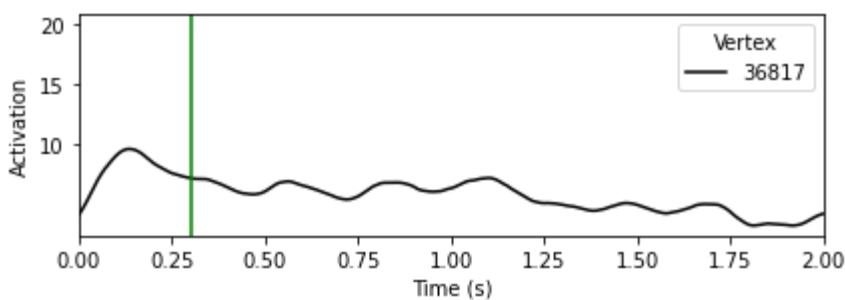
```
beta1 encoding manipulation 0.1
Fixing initial time: 0.1 sec
Showing: t = 0.100 s, (5.0, 65.0, -20.0) mm, [17, 36, 11] vox, 15362
vertex
```



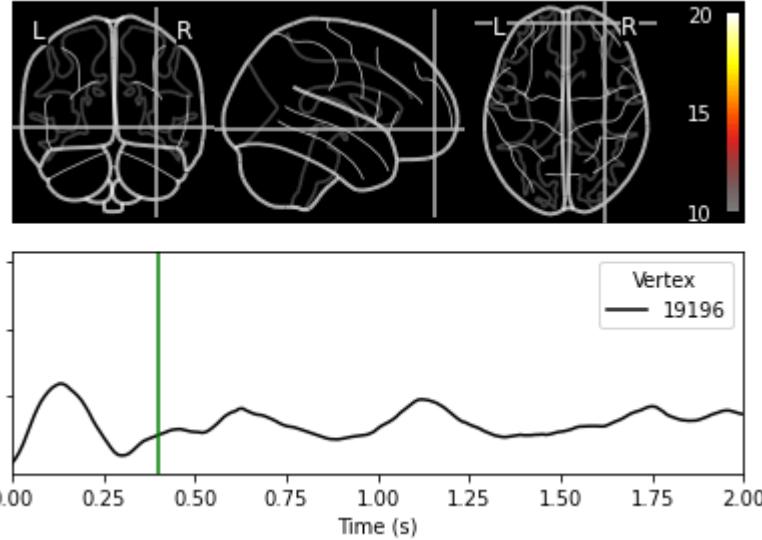
```
beta1 encoding manipulation 0.2
Fixing initial time: 0.2 sec
Showing: t = 0.200 s, (15.0, -0.0, 10.0) mm, [19, 23, 17] vox, 22657
vertex
```



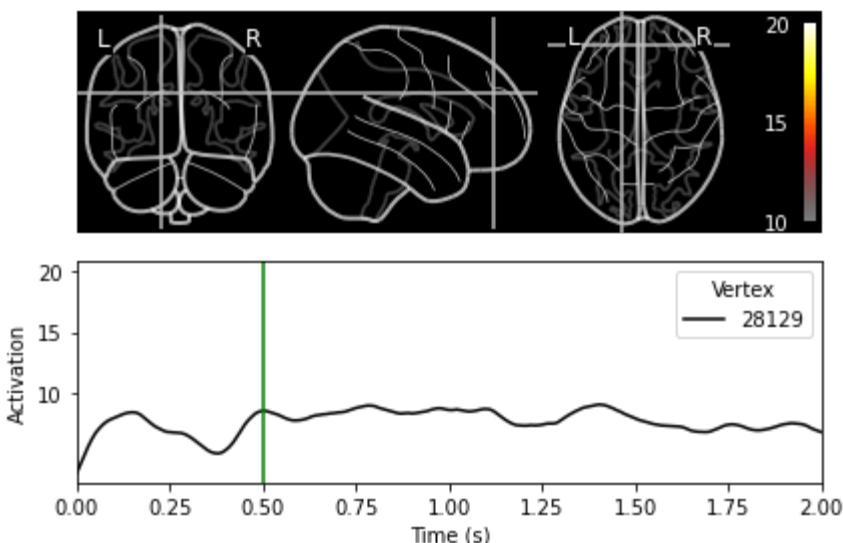
```
beta1 encoding manipulation 0.30000000000000004
Fixing initial time: 0.30000000000000004 sec
Showing: t = 0.300 s, (30.0, -0.0, 65.0) mm, [22, 23, 28] vox, 36817
vertex
```



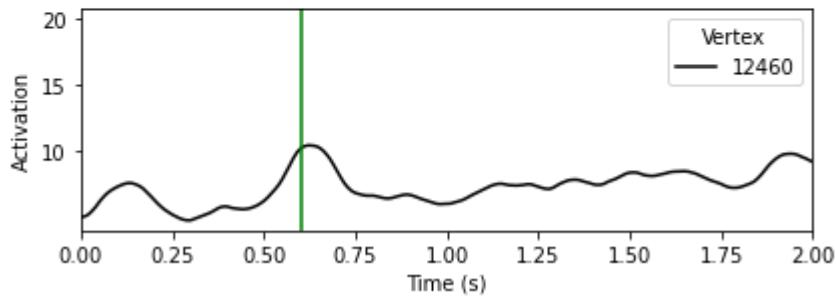
```
beta1 encoding manipulation 0.4
Fixing initial time: 0.4 sec
Showing: t = 0.400 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196
vertex
```



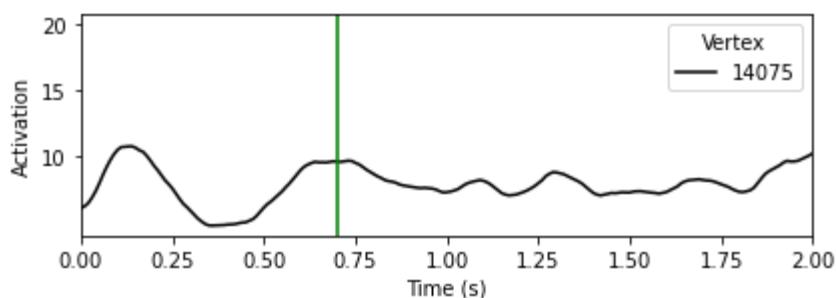
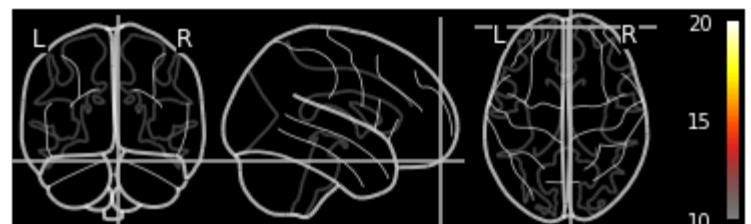
```
beta1 encoding manipulation 0.5
Fixing initial time: 0.5 sec
Showing: t = 0.500 s, (-15.0, 50.0, 30.0) mm, [13, 33, 21] vox, 28129
vertex
```



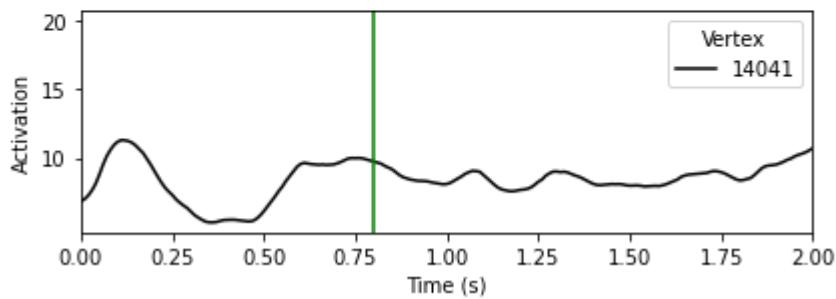
```
beta1 encoding manipulation 0.6000000000000001
Fixing initial time: 0.6000000000000001 sec
Showing: t = 0.600 s, (15.0, 15.0, -30.0) mm, [19, 26, 9] vox, 12460
vertex
```



```
beta1 encoding manipulation 0.7000000000000001
Fixing initial time: 0.7000000000000001 sec
Showing: t = 0.700 s, (5.0, 65.0, -25.0) mm, [17, 36, 10] vox, 14075
vertex
```



```
beta1 encoding manipulation 0.8
Fixing initial time: 0.8 sec
Showing: t = 0.800 s, (0.0, 60.0, -25.0) mm, [16, 35, 10] vox, 14041
vertex
```

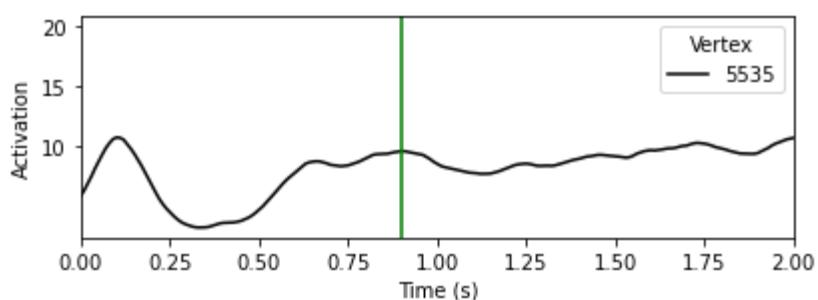
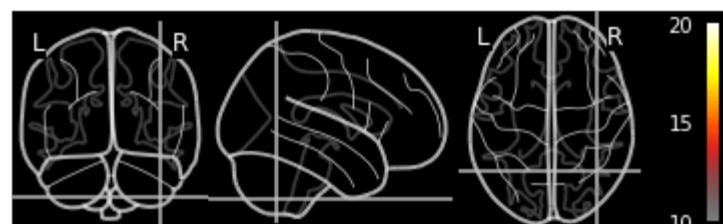


beta1 encoding manipulation 0.9

Fixing initial time: 0.9 sec

Showing: t = 0.900 s, (40.0, -60.0, -55.0) mm, [24, 11, 4] vox, 5535

vertex

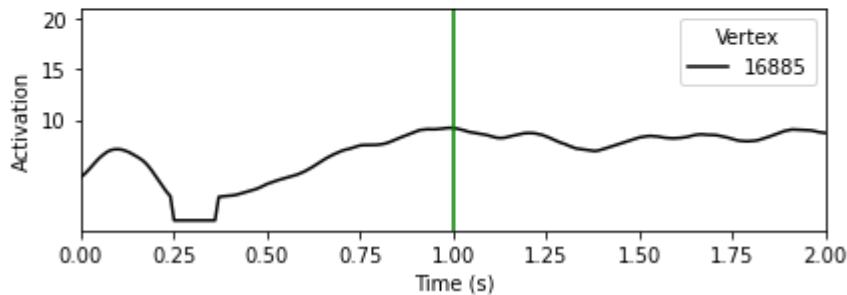


beta1 encoding manipulation 1.0

Fixing initial time: 1.0 sec

Showing: t = 1.000 s, (30.0, -95.0, -10.0) mm, [22, 4, 13] vox, 16885

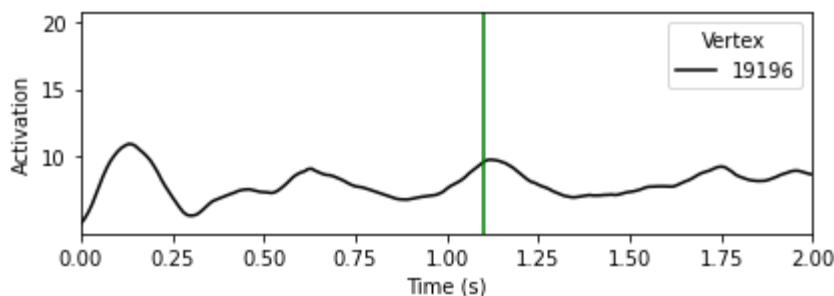
vertex



beta1 encoding manipulation 1.1

Fixing initial time: 1.1 sec

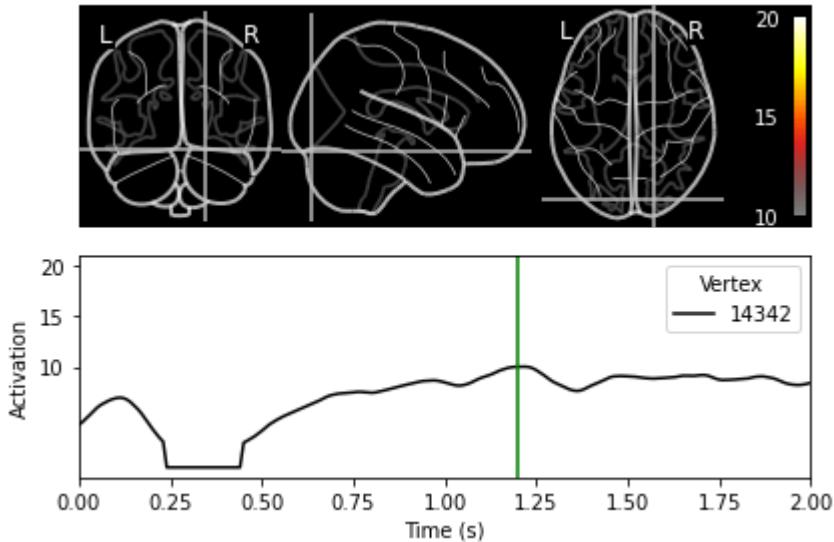
Showing: t = 1.100 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



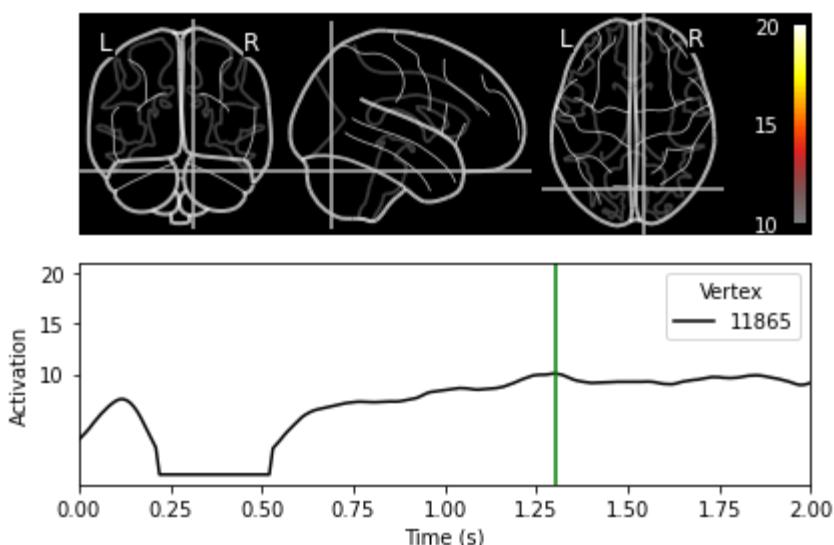
beta1 encoding manipulation 1.2000000000000002

Fixing initial time: 1.2000000000000002 sec

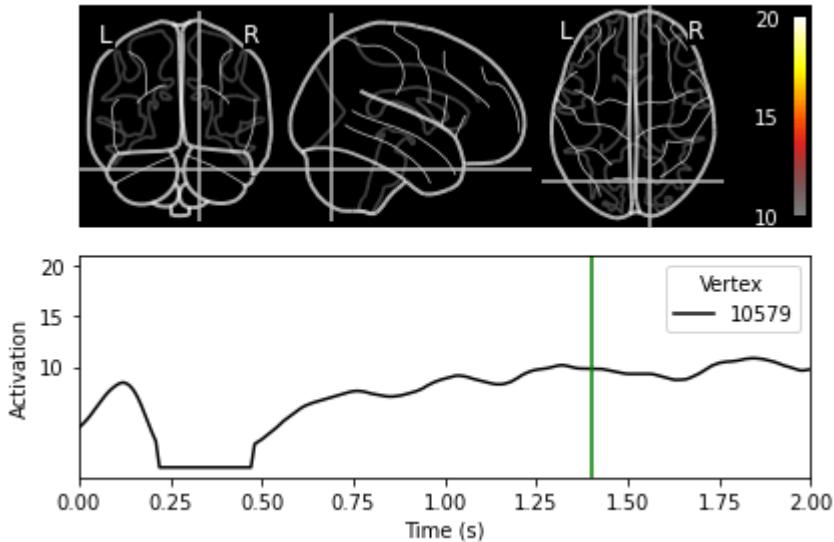
Showing: t = 1.200 s, (20.0, -90.0, -20.0) mm, [20, 5, 11] vox, 14342 vertex



```
beta1 encoding manipulation 1.3
Fixing initial time: 1.3 sec
Showing: t = 1.300 s, (10.0, -75.0, -30.0) mm, [18, 8, 9] vox, 11865
vertex
```



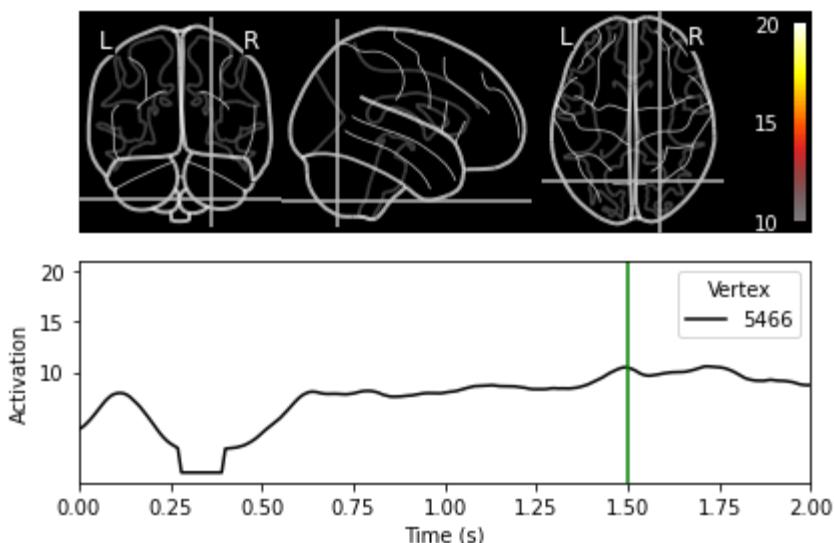
```
beta1 encoding manipulation 1.4000000000000001
Fixing initial time: 1.4000000000000001 sec
Showing: t = 1.400 s, (15.0, -75.0, -35.0) mm, [19, 8, 8] vox, 10579
vertex
```



beta1 encoding manipulation 1.5

Fixing initial time: 1.5 sec

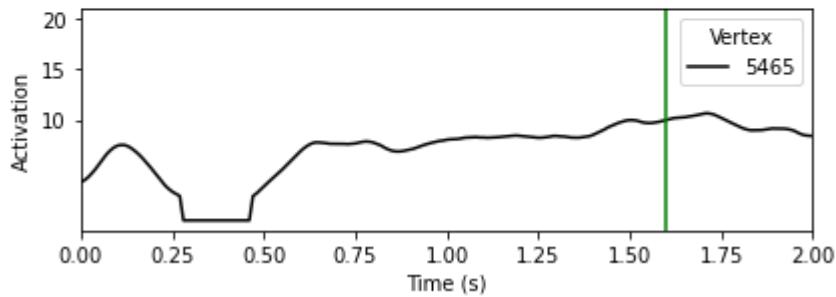
Showing: t = 1.500 s, (25.0, -70.0, -55.0) mm, [21, 9, 4] vox, 5466 vertex



beta1 encoding manipulation 1.6

Fixing initial time: 1.6 sec

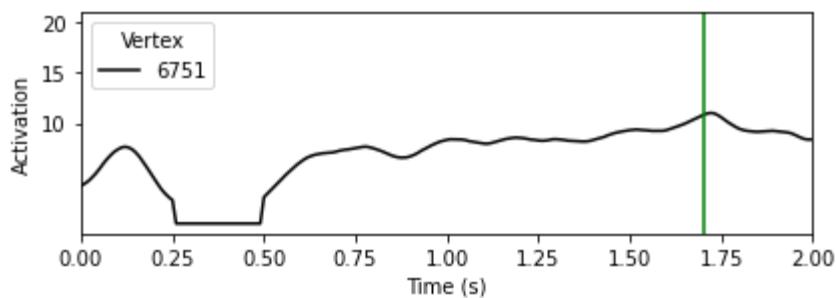
Showing: t = 1.600 s, (20.0, -70.0, -55.0) mm, [20, 9, 4] vox, 5465 vertex



beta1 encoding manipulation 1.7000000000000002

Fixing initial time: 1.7000000000000002 sec

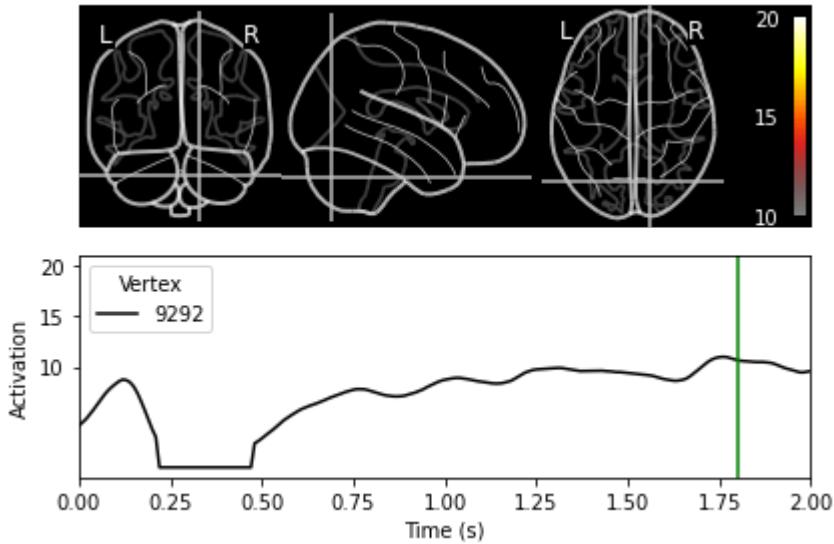
Showing: t = 1.700 s, (15.0, -70.0, -50.0) mm, [19, 9, 5] vox, 6751 vertex



beta1 encoding manipulation 1.8

Fixing initial time: 1.8 sec

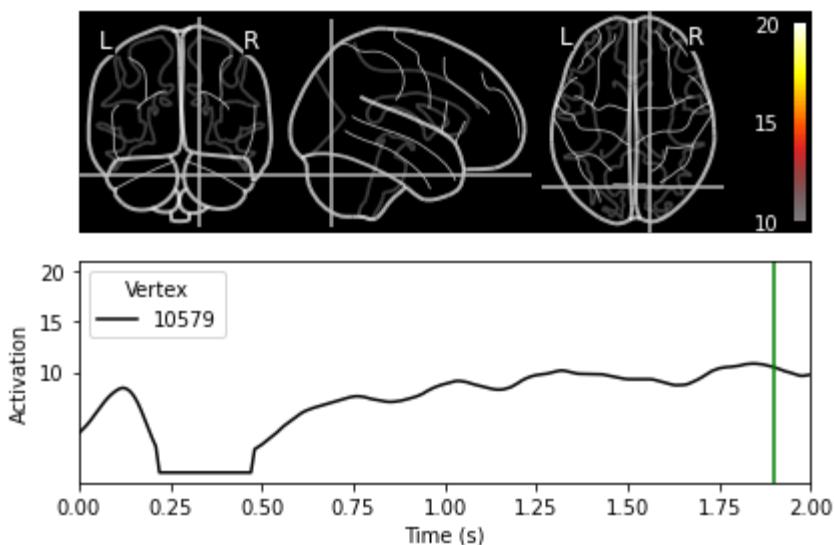
Showing: t = 1.800 s, (15.0, -75.0, -40.0) mm, [19, 8, 7] vox, 9292 vertex



beta1 encoding manipulation 1.9000000000000001

Fixing initial time: 1.9000000000000001 sec

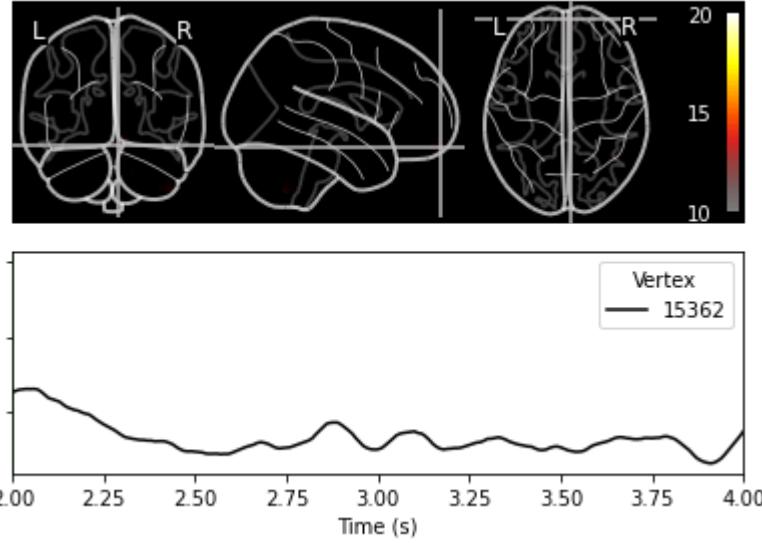
Showing: t = 1.900 s, (15.0, -75.0, -35.0) mm, [19, 8, 8] vox, 10579
vertex



beta1 delay manipulation 2.0

Fixing initial time: 2.0 sec

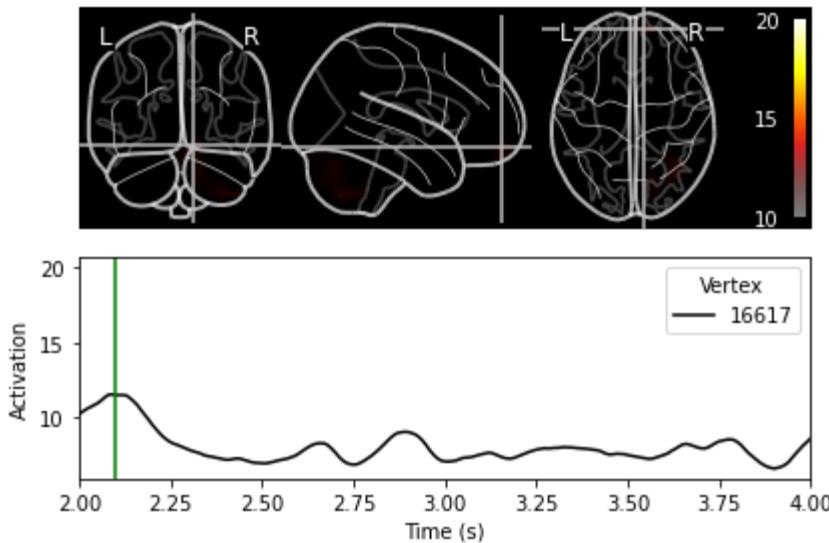
Showing: t = 2.000 s, (5.0, 65.0, -20.0) mm, [17, 36, 11] vox, 15362
vertex



beta1 delay manipulation 2.1

Fixing initial time: 2.1 sec

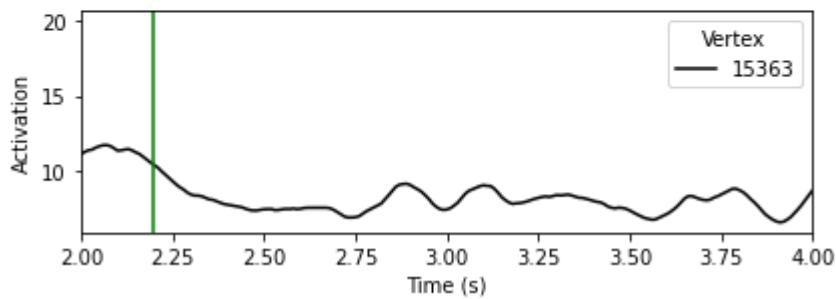
Showing: t = 2.100 s, (10.0, 60.0, -15.0) mm, [18, 35, 12] vox, 16617
vertex



beta1 delay manipulation 2.2

Fixing initial time: 2.2 sec

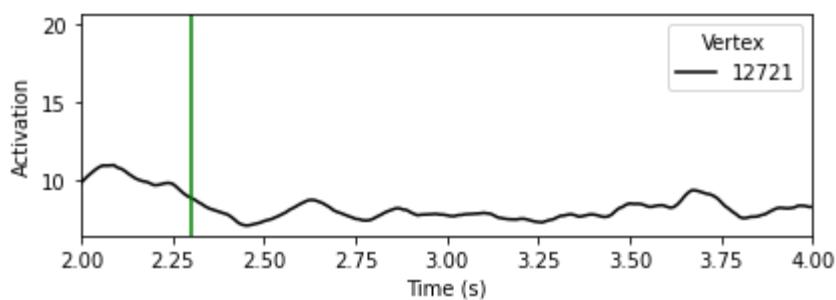
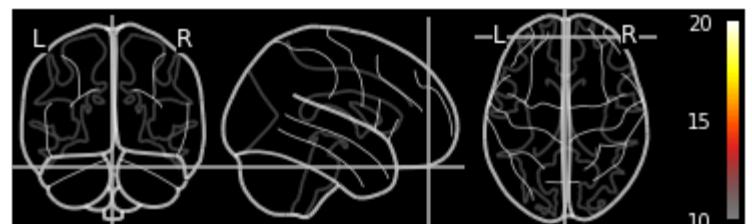
Showing: t = 2.200 s, (10.0, 65.0, -20.0) mm, [18, 36, 11] vox, 15363
vertex



beta1 delay manipulation 2.3

Fixing initial time: 2.3 sec

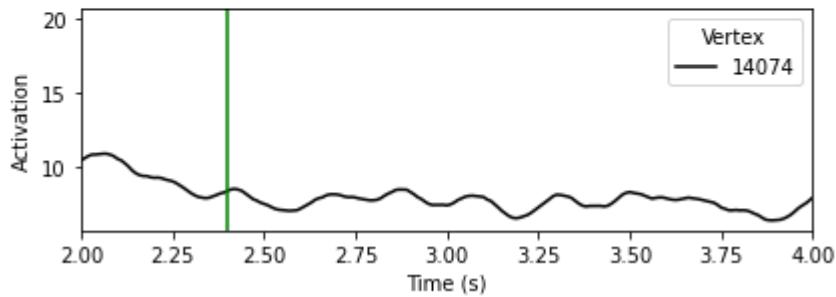
Showing: t = 2.300 s, (0.0, 55.0, -30.0) mm, [16, 34, 9] vox, 12721 vertex



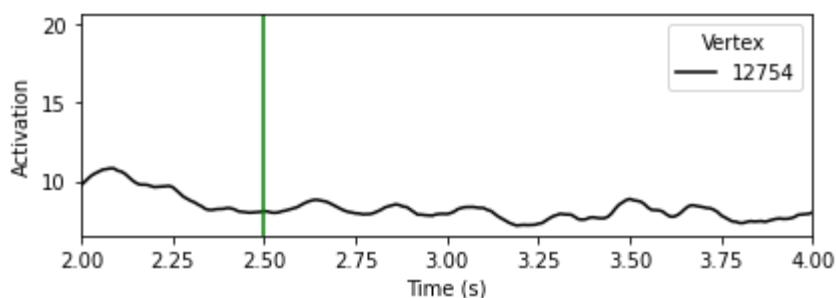
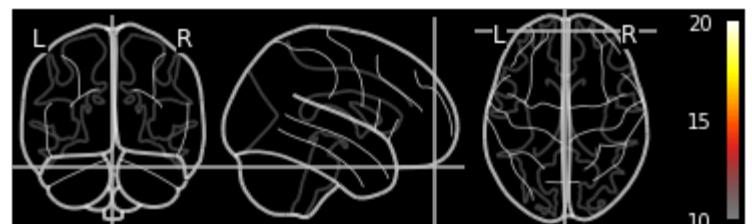
beta1 delay manipulation 2.4

Fixing initial time: 2.4 sec

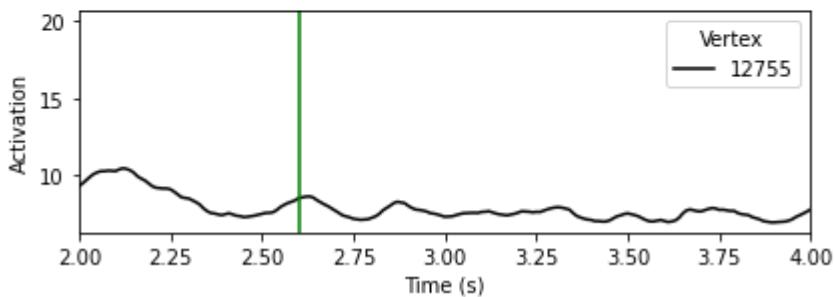
Showing: t = 2.400 s, (0.0, 65.0, -25.0) mm, [16, 36, 10] vox, 14074 vertex



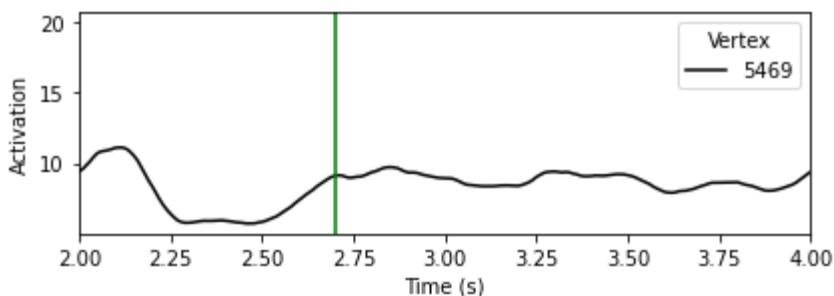
```
beta1 delay manipulation 2.5
Fixing initial time: 2.5 sec
Showing: t = 2.500 s, (0.0, 60.0, -30.0) mm, [16, 35, 9] vox, 12754 v
ertex
```



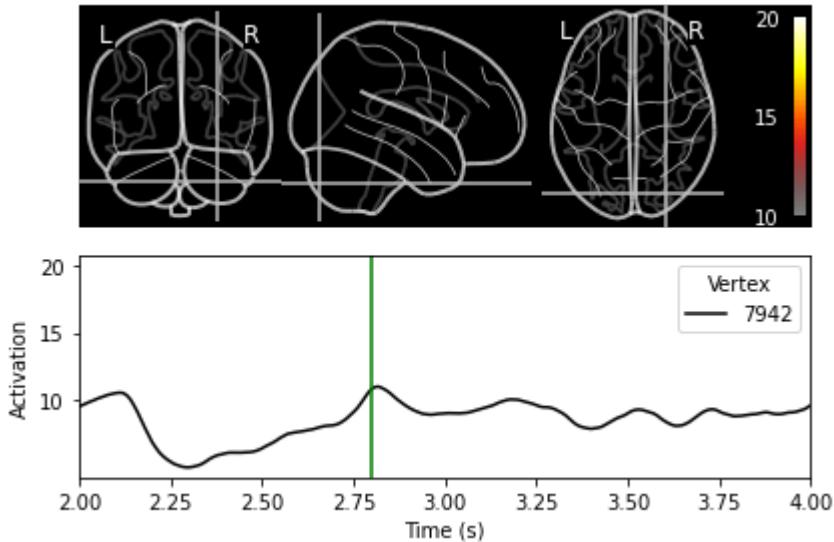
```
beta1 delay manipulation 2.6
Fixing initial time: 2.6 sec
Showing: t = 2.600 s, (5.0, 60.0, -30.0) mm, [17, 35, 9] vox, 12755 v
ertex
```



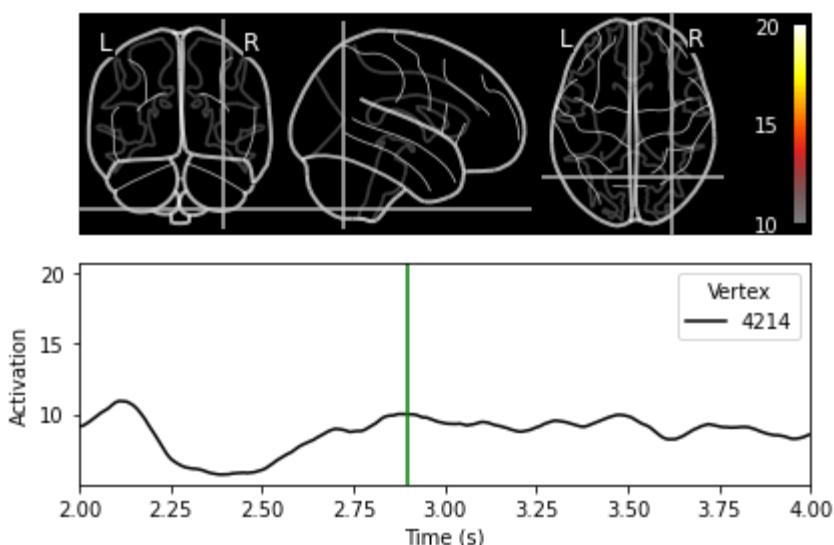
```
beta1 delay manipulation 2.7
Fixing initial time: 2.7 sec
Showing: t = 2.700 s, (40.0, -70.0, -55.0) mm, [24, 9, 4] vox, 5469 vertex
```



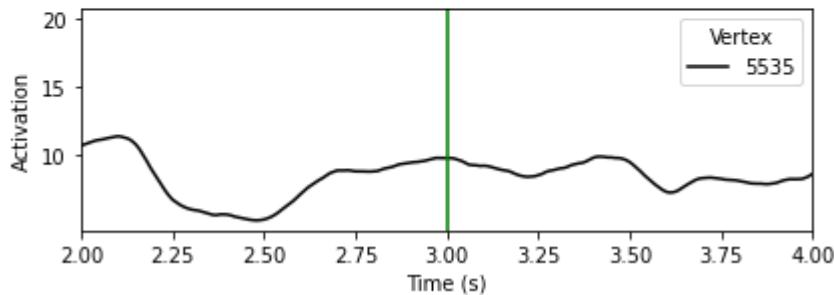
```
beta1 delay manipulation 2.8
Fixing initial time: 2.8 sec
Showing: t = 2.800 s, (30.0, -85.0, -45.0) mm, [22, 6, 6] vox, 7942 vertex
```



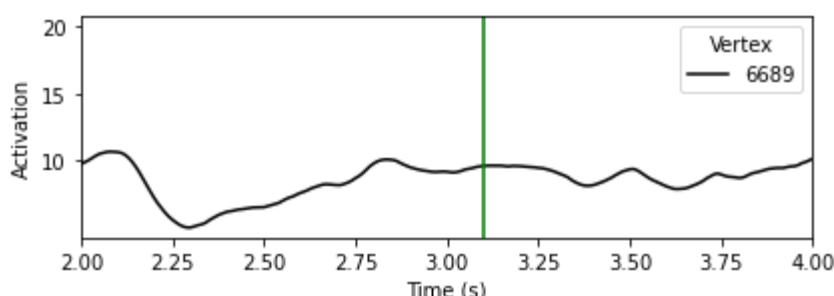
```
beta1 delay manipulation 2.9
Fixing initial time: 2.9 sec
Showing: t = 2.900 s, (35.0, -65.0, -60.0) mm, [23, 10, 3] vox, 4214
vertex
```



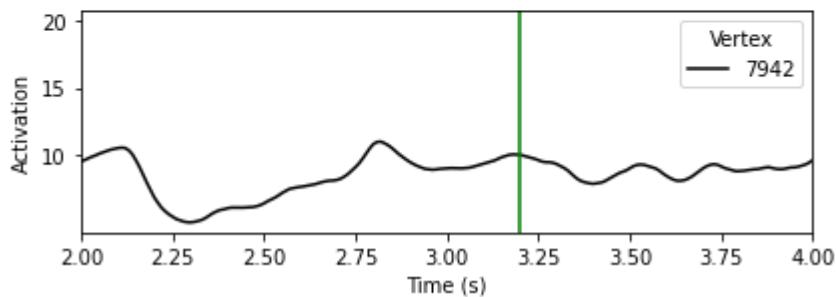
```
beta1 delay manipulation 3.0
Fixing initial time: 3.0 sec
Showing: t = 3.000 s, (40.0, -60.0, -55.0) mm, [24, 11, 4] vox, 5535
vertex
```



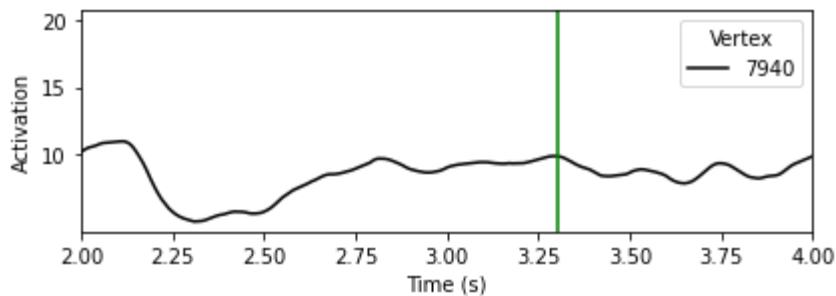
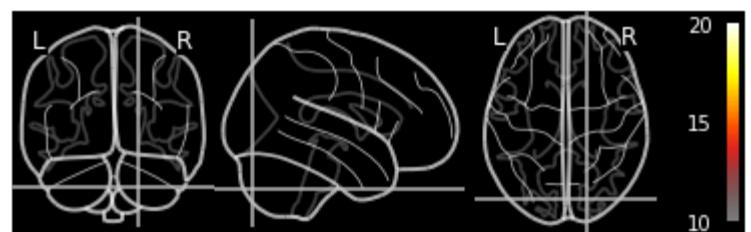
```
beta1 delay manipulation 3.1
Fixing initial time: 3.1 sec
Showing: t = 3.100 s, (35.0, -80.0, -50.0) mm, [23, 7, 5] vox, 6689 vertex
```



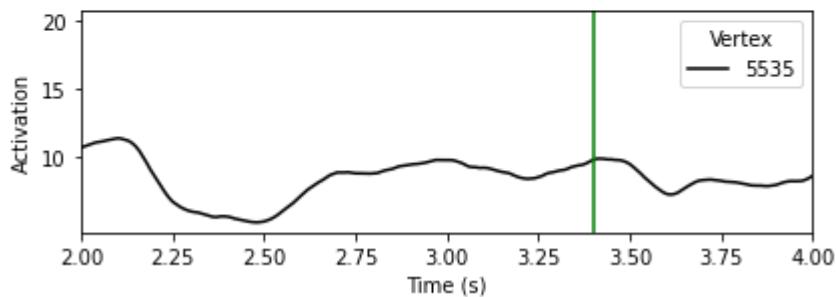
```
beta1 delay manipulation 3.2
Fixing initial time: 3.2 sec
Showing: t = 3.200 s, (30.0, -85.0, -45.0) mm, [22, 6, 6] vox, 7942 vertex
```



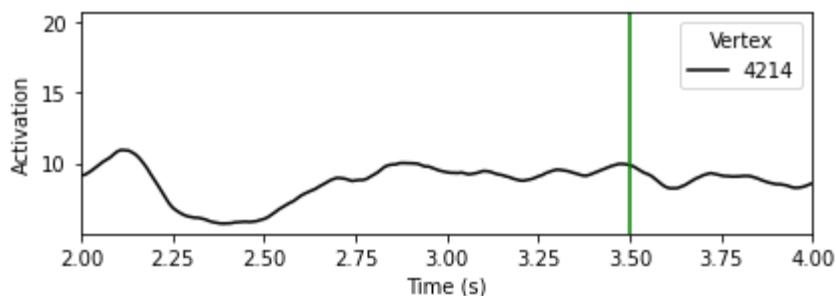
```
beta1 delay manipulation 3.3
Fixing initial time: 3.3 sec
Showing: t = 3.300 s, (20.0, -85.0, -45.0) mm, [20, 6, 6] vox, 7940 vertex
```



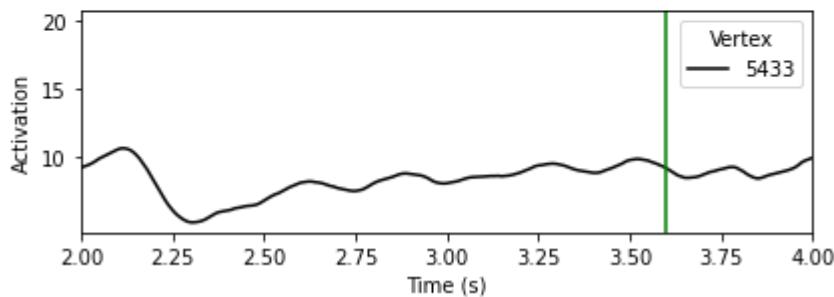
```
beta1 delay manipulation 3.4000000000000004
Fixing initial time: 3.4000000000000004 sec
Showing: t = 3.400 s, (40.0, -60.0, -55.0) mm, [24, 11, 4] vox, 5535 vertex
```



```
beta1 delay manipulation 3.5
Fixing initial time: 3.5 sec
Showing: t = 3.500 s, (35.0, -65.0, -60.0) mm, [23, 10, 3] vox, 4214
vertex
```



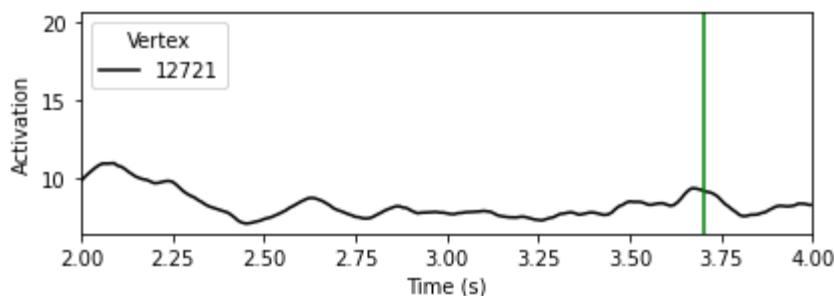
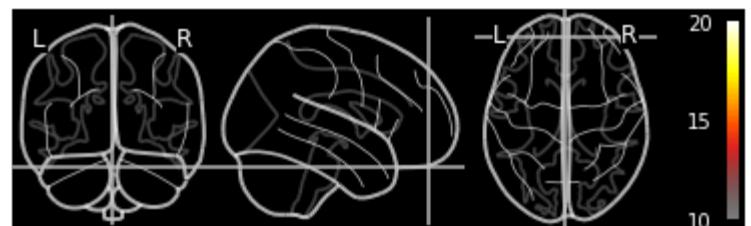
```
beta1 delay manipulation 3.6
Fixing initial time: 3.6 sec
Showing: t = 3.600 s, (25.0, -75.0, -55.0) mm, [21, 8, 4] vox, 5433 v
ertex
```



beta1 delay manipulation 3.7

Fixing initial time: 3.7 sec

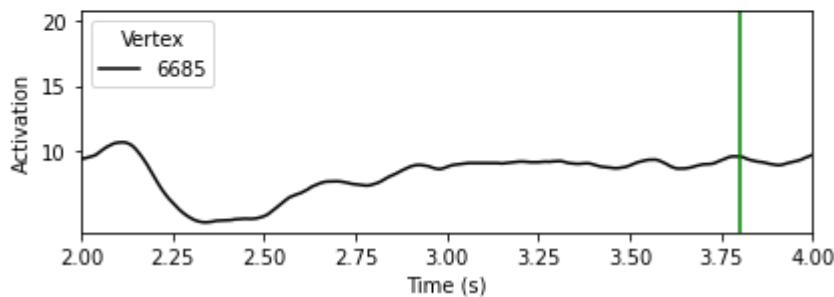
Showing: t = 3.700 s, (0.0, 55.0, -30.0) mm, [16, 34, 9] vox, 12721 vertex



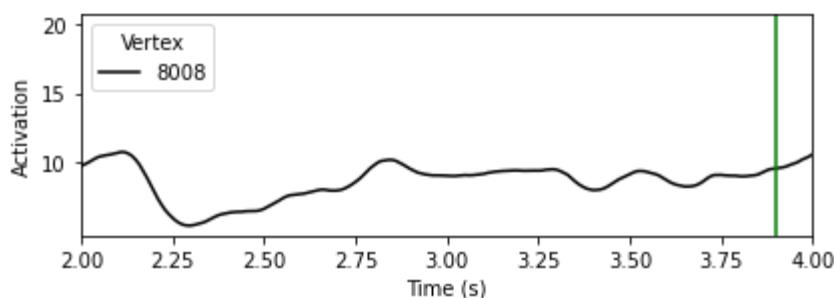
beta1 delay manipulation 3.8

Fixing initial time: 3.8 sec

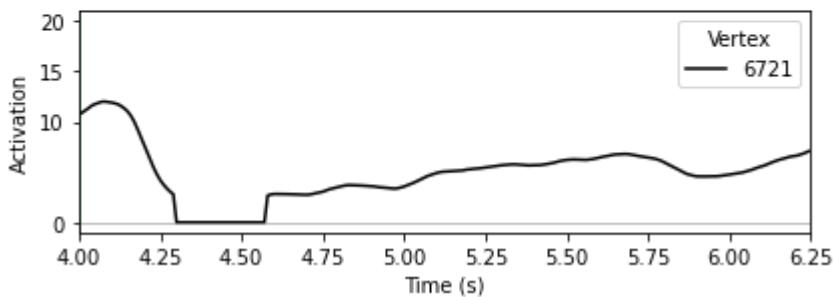
Showing: t = 3.800 s, (15.0, -80.0, -50.0) mm, [19, 7, 5] vox, 6685 vertex



```
beta1 delay manipulation 3.9000000000000004
Fixing initial time: 3.9000000000000004 sec
Showing: t = 3.900 s, (30.0, -75.0, -45.0) mm, [22, 8, 6] vox, 8008 vertices
```



```
beta1 recall manipulation 4.0
Fixing initial time: 4.0 sec
Showing: t = 4.000 s, (30.0, -75.0, -50.0) mm, [22, 8, 5] vox, 6721 vertices
```

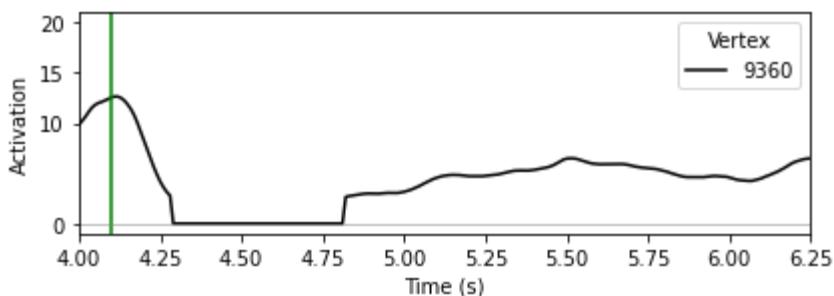
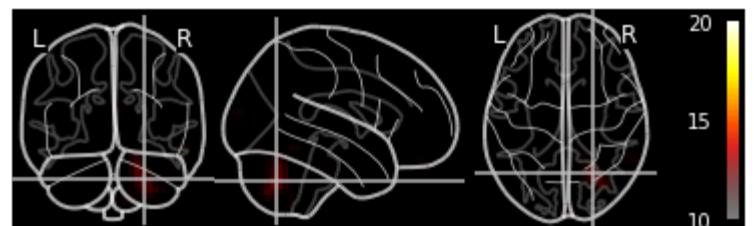


beta1 recall manipulation 4.1

Fixing initial time: 4.1 sec

Showing: t = 4.100 s, (25.0, -65.0, -40.0) mm, [21, 10, 7] vox, 9360

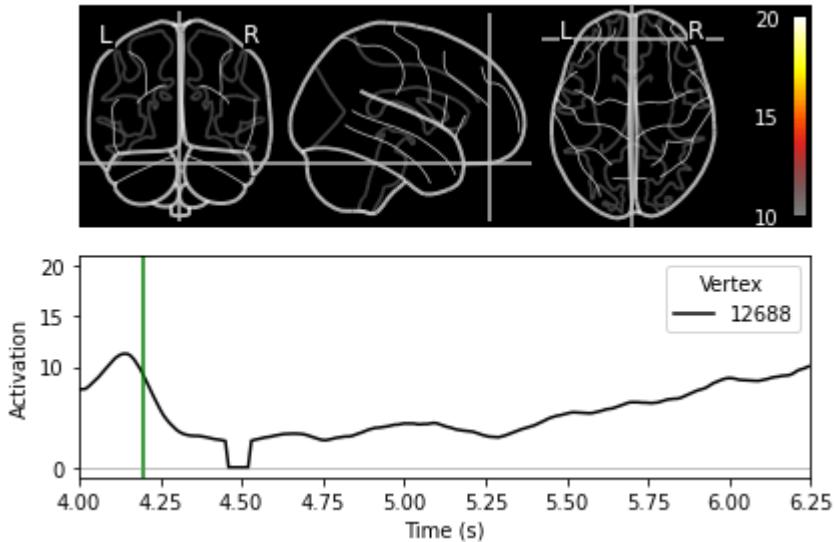
vertex



beta1 recall manipulation 4.2

Fixing initial time: 4.2 sec

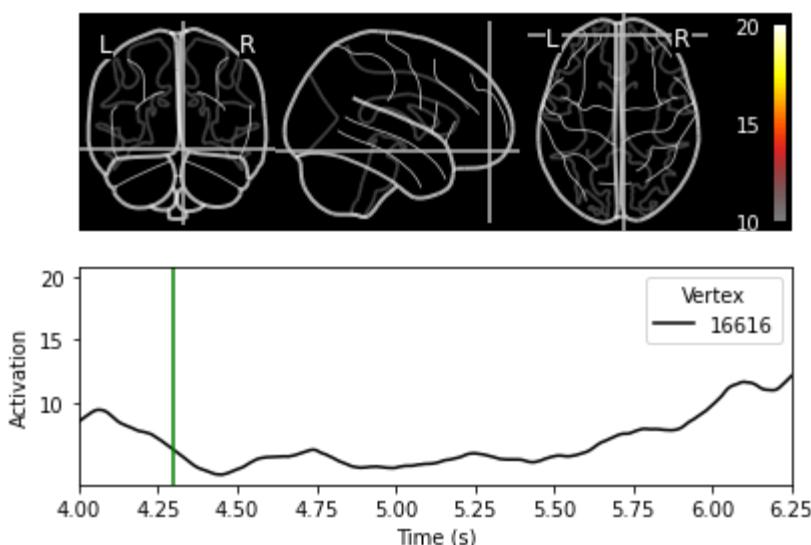
Showing: t = 4.200 s, (0.0, 50.0, -30.0) mm, [16, 33, 9] vox, 12688 vertex



beta1 recall manipulation 4.3

Fixing initial time: 4.3 sec

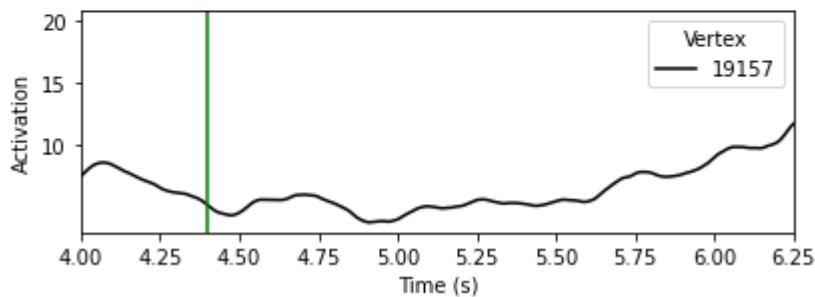
Showing: t = 4.300 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616 vertex



beta1 recall manipulation 4.4

Fixing initial time: 4.4 sec

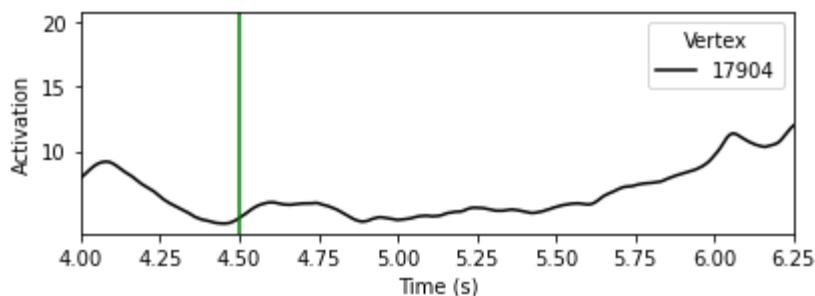
Showing: t = 4.400 s, (5.0, 55.0, -5.0) mm, [17, 34, 14] vox, 19157 vertex



beta1 recall manipulation 4.5

Fixing initial time: 4.5 sec

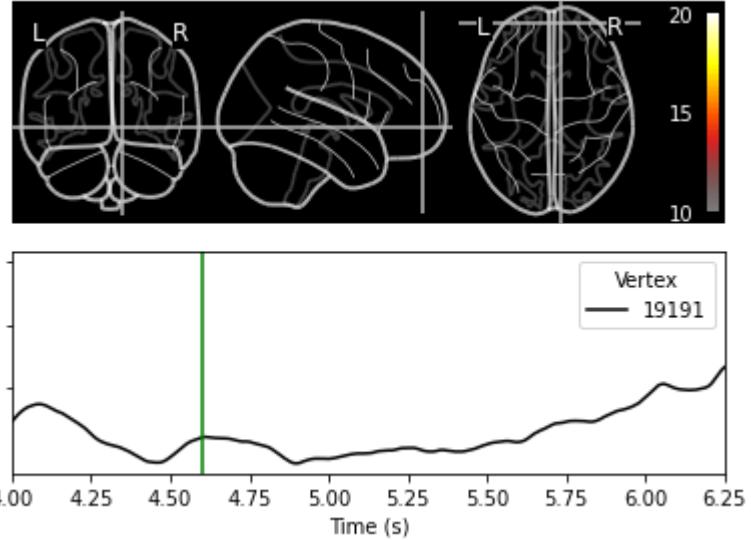
Showing: t = 4.500 s, (10.0, 60.0, -10.0) mm, [18, 35, 13] vox, 17904 vertex



beta1 recall manipulation 4.6

Fixing initial time: 4.6 sec

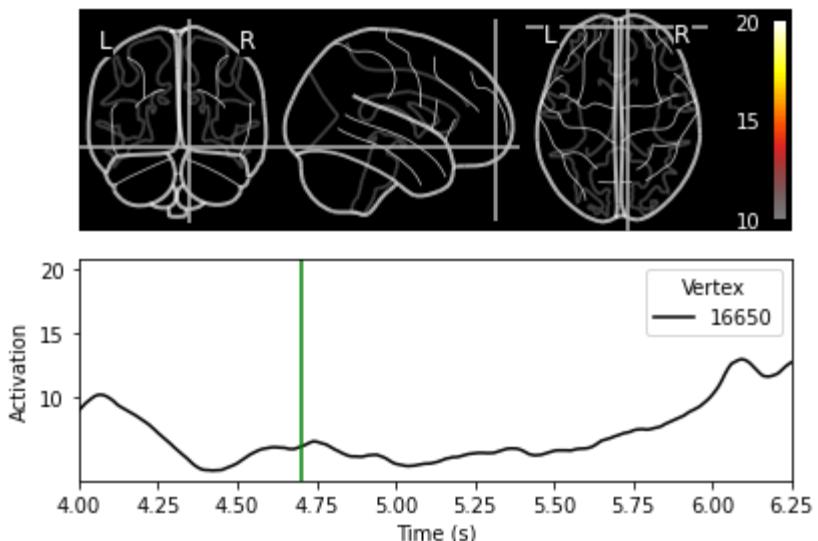
Showing: t = 4.600 s, (10.0, 60.0, -5.0) mm, [18, 35, 14] vox, 19191 vertex



beta1 recall manipulation 4.7

Fixing initial time: 4.7 sec

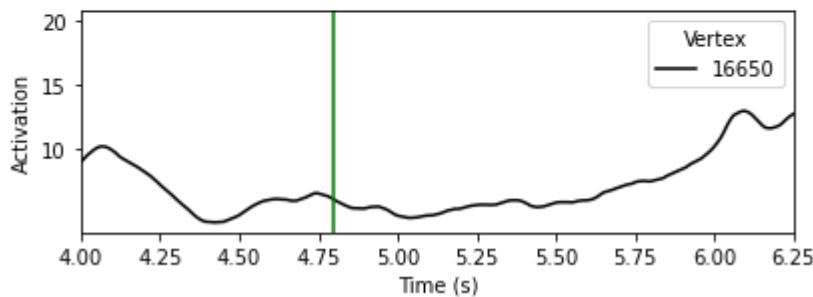
Showing: t = 4.700 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650
vertex



beta1 recall manipulation 4.8

Fixing initial time: 4.8 sec

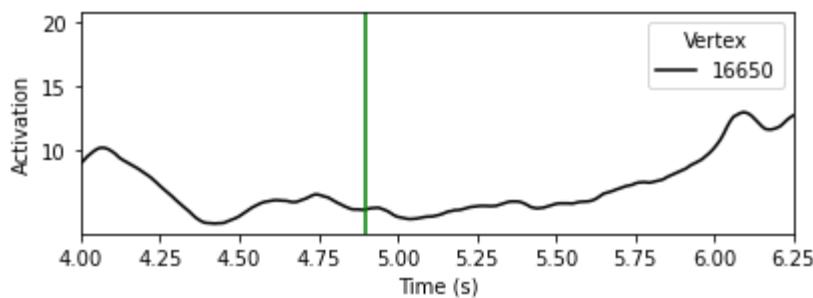
Showing: t = 4.800 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650
vertex



beta1 recall manipulation 4.9

Fixing initial time: 4.9 sec

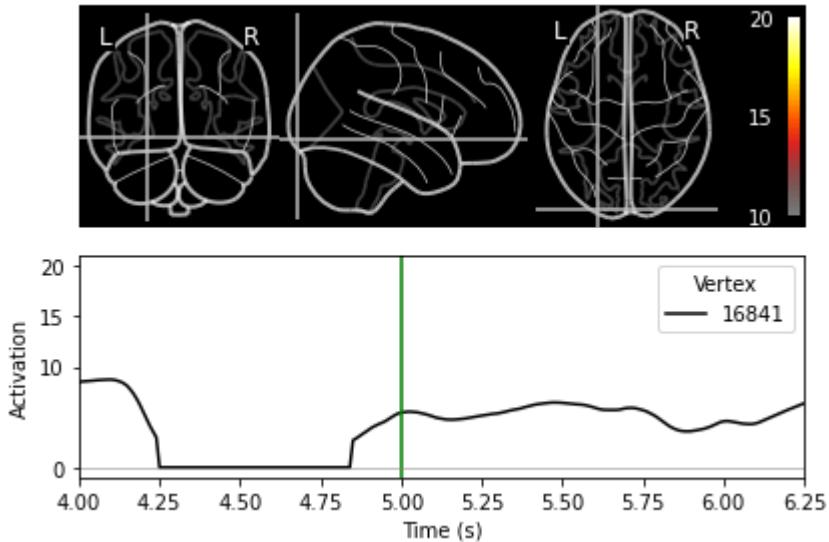
Showing: t = 4.900 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650 vertex



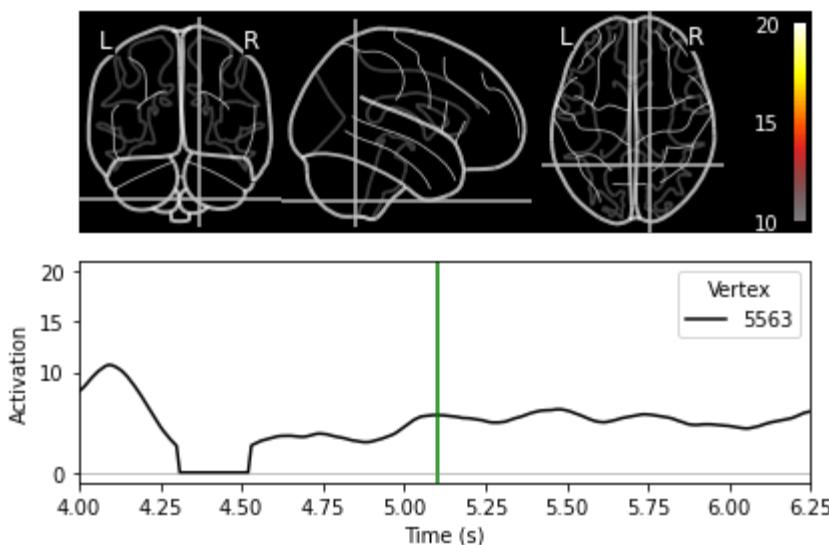
beta1 recall manipulation 5.0

Fixing initial time: 5.0 sec

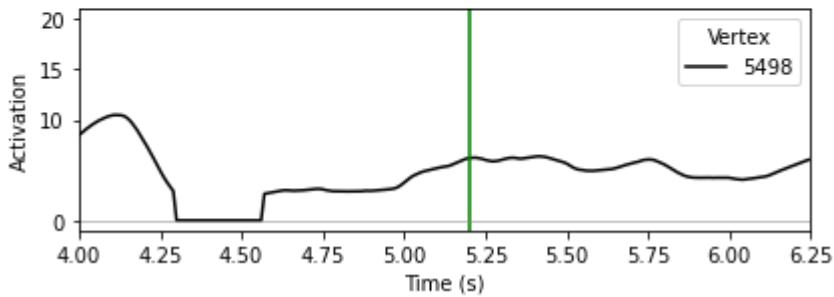
Showing: t = 5.000 s, (-25.0, -100.0, -10.0) mm, [11, 3, 13] vox, 16841 vertex



```
beta1 recall manipulation 5.1
Fixing initial time: 5.1 sec
Showing: t = 5.100 s, (15.0, -55.0, -55.0) mm, [19, 12, 4] vox, 5563
vertex
```



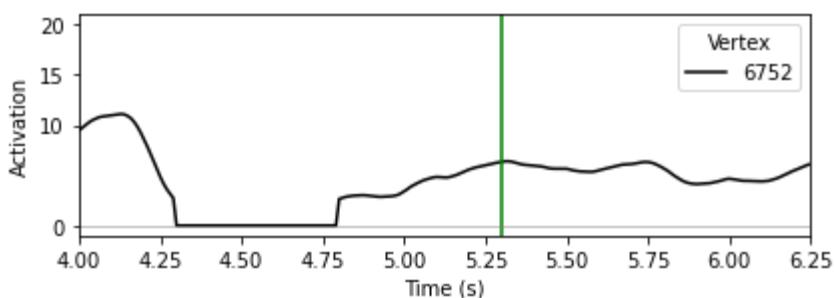
```
beta1 recall manipulation 5.2
Fixing initial time: 5.2 sec
Showing: t = 5.200 s, (20.0, -65.0, -55.0) mm, [20, 10, 4] vox, 5498
vertex
```



beta1 recall manipulation 5.3

Fixing initial time: 5.3 sec

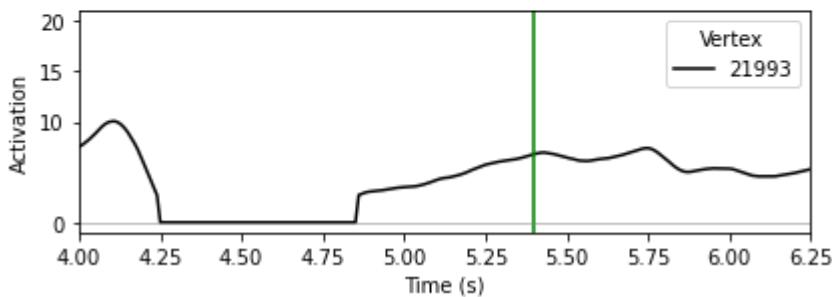
Showing: t = 5.300 s, (20.0, -70.0, -50.0) mm, [20, 9, 5] vox, 6752 vertex



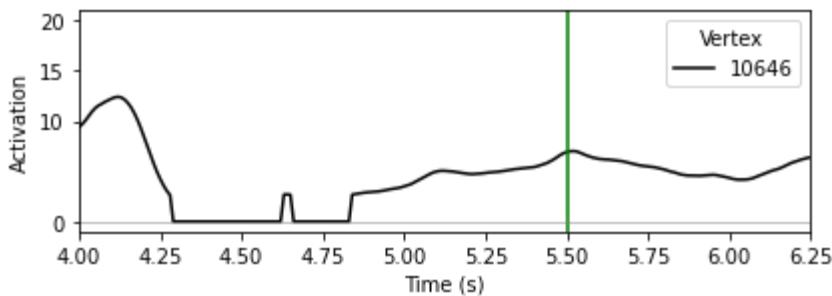
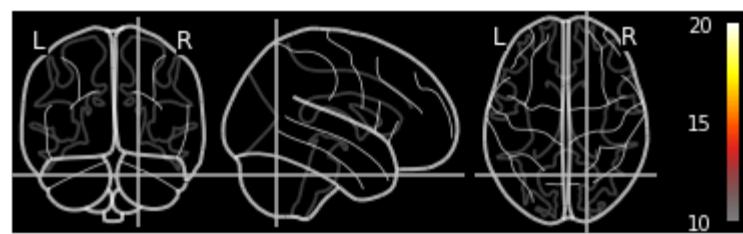
beta1 recall manipulation 5.4

Fixing initial time: 5.4 sec

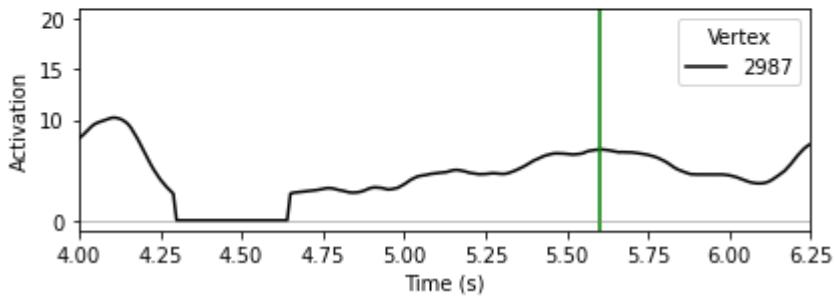
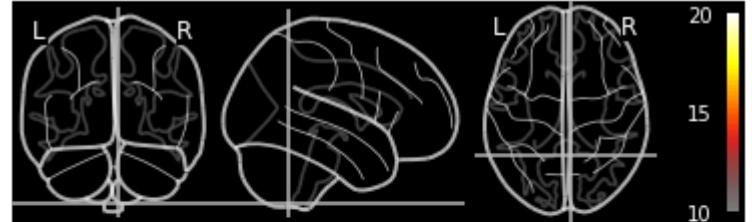
Showing: t = 5.400 s, (-5.0, -100.0, 10.0) mm, [15, 3, 17] vox, 21993 vertex



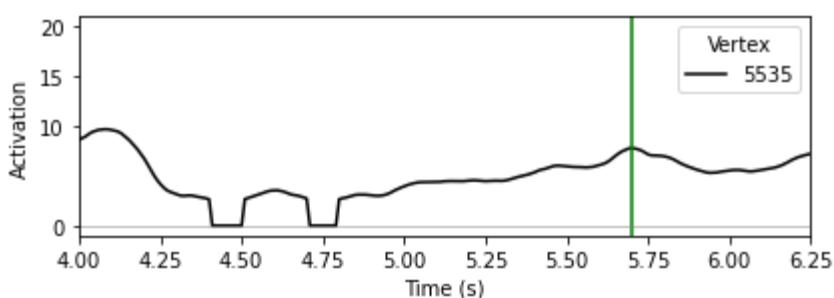
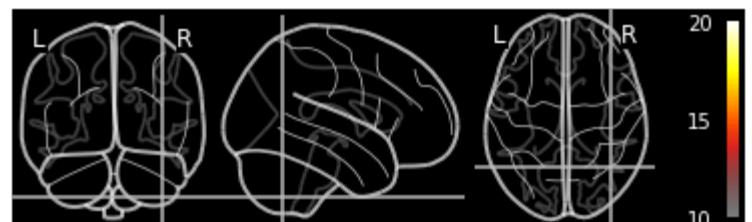
```
beta1 recall manipulation 5.5
Fixing initial time: 5.5 sec
Showing: t = 5.500 s, (20.0, -65.0, -35.0) mm, [20, 10, 8] vox, 10646
vertex
```



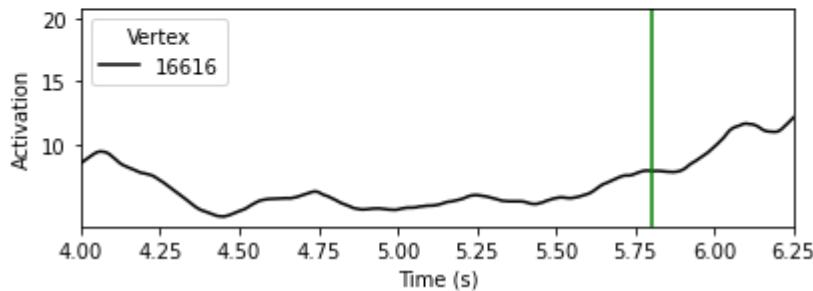
```
beta1 recall manipulation 5.6
Fixing initial time: 5.6 sec
Showing: t = 5.600 s, (5.0, -55.0, -65.0) mm, [17, 12, 2] vox, 2987 v
ertex
```



```
beta1 recall manipulation 5.7
Fixing initial time: 5.7 sec
Showing: t = 5.700 s, (40.0, -60.0, -55.0) mm, [24, 11, 4] vox, 5535
vertex
```



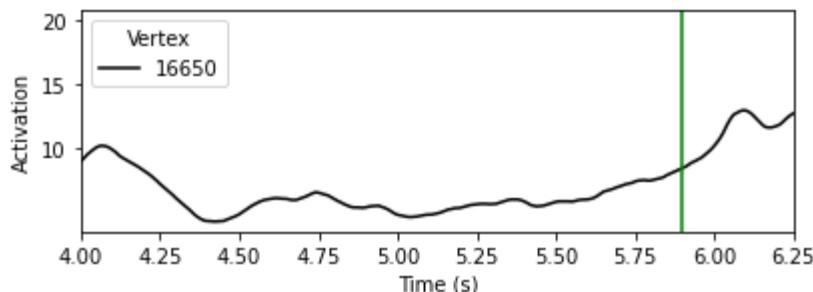
```
beta1 recall manipulation 5.8
Fixing initial time: 5.8 sec
Showing: t = 5.800 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616
vertex
```



beta1 recall manipulation 5.9

Fixing initial time: 5.9 sec

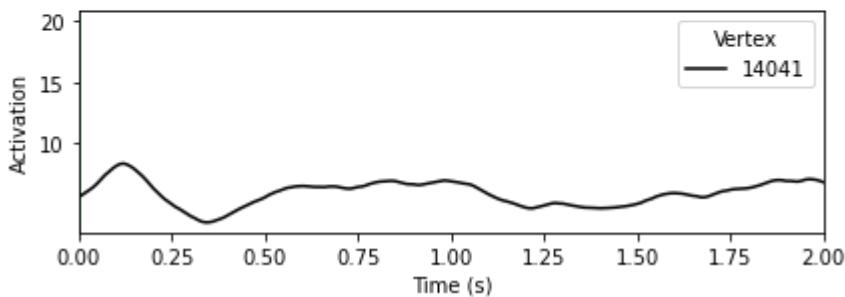
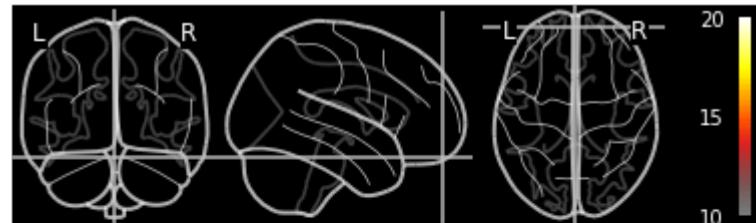
Showing: t = 5.900 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650 vertex



beta2 encoding manipulation 0.0

Fixing initial time: 0.0 sec

Showing: t = 0.000 s, (0.0, 60.0, -25.0) mm, [16, 35, 10] vox, 14041 vertex

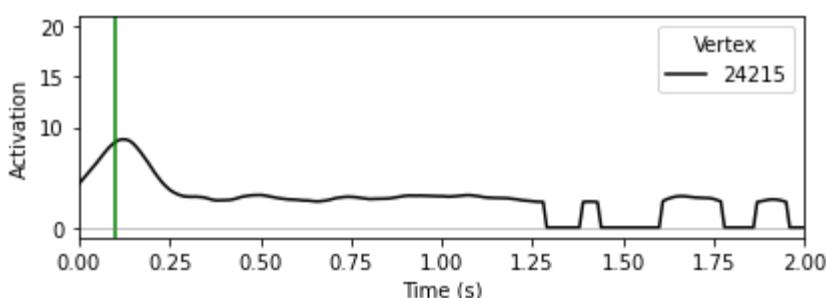


beta2 encoding manipulation 0.1

Fixing initial time: 0.1 sec

Showing: t = 0.100 s, (50.0, 40.0, 15.0) mm, [26, 31, 18] vox, 24215

vertex

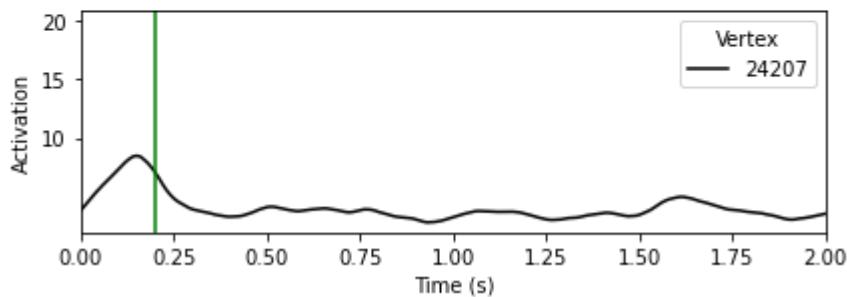
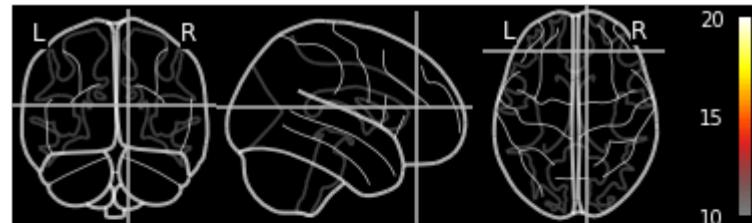


beta2 encoding manipulation 0.2

Fixing initial time: 0.2 sec

Showing: t = 0.200 s, (10.0, 40.0, 15.0) mm, [18, 31, 18] vox, 24207

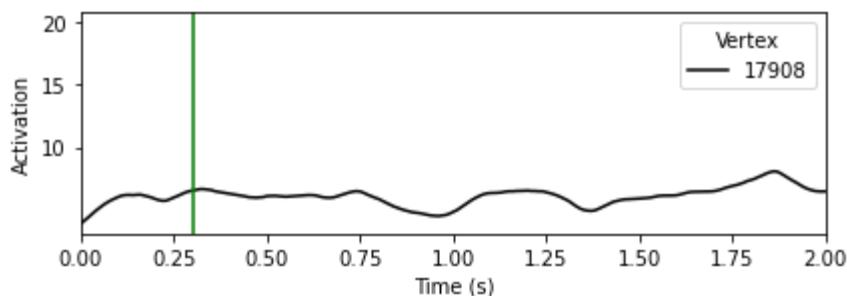
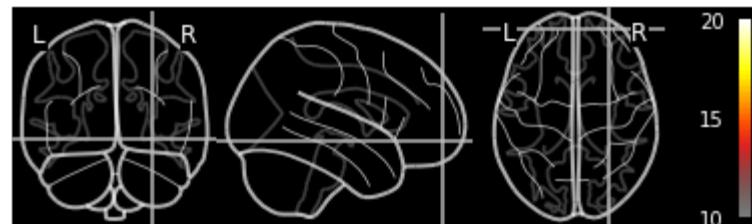
vertex



beta2 encoding manipulation 0.30000000000000004

Fixing initial time: 0.30000000000000004 sec

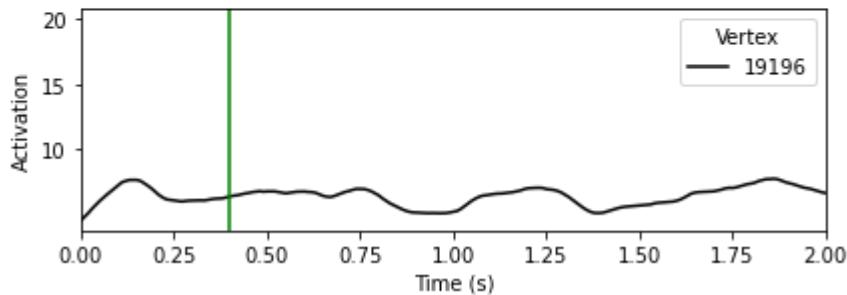
Showing: t = 0.300 s, (30.0, 60.0, -10.0) mm, [22, 35, 13] vox, 17908 vertex



beta2 encoding manipulation 0.4

Fixing initial time: 0.4 sec

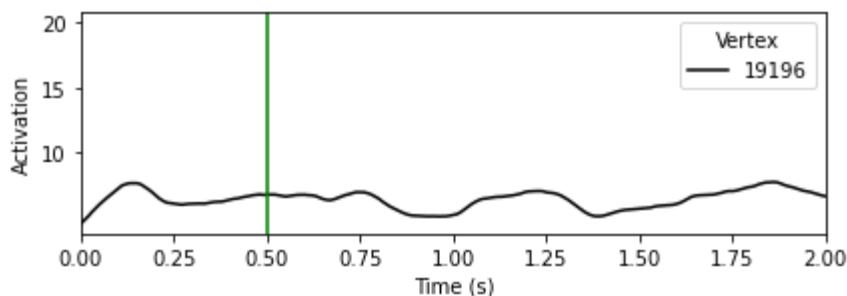
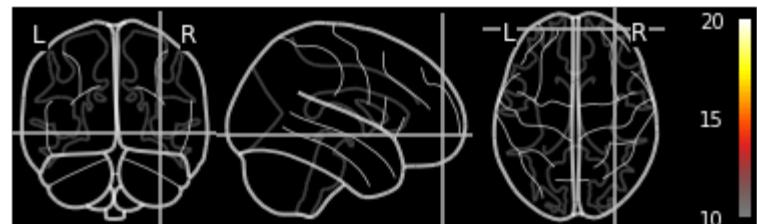
Showing: t = 0.400 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



beta2 encoding manipulation 0.5

Fixing initial time: 0.5 sec

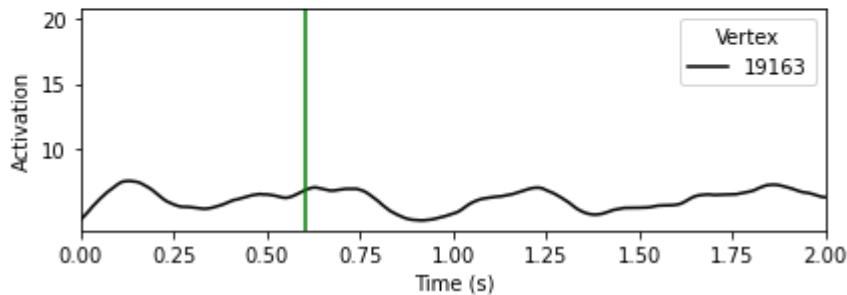
Showing: t = 0.500 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



beta2 encoding manipulation 0.6000000000000001

Fixing initial time: 0.6000000000000001 sec

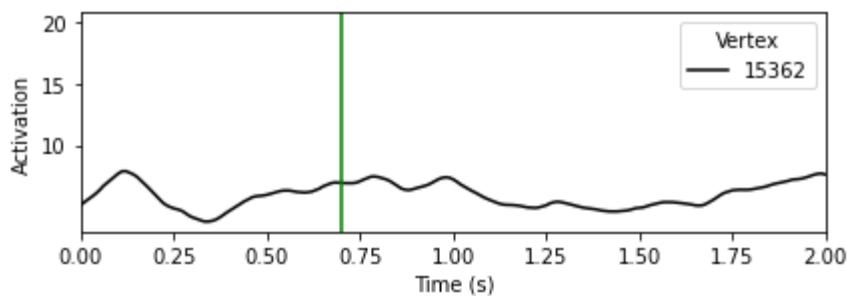
Showing: t = 0.600 s, (35.0, 55.0, -5.0) mm, [23, 34, 14] vox, 19163 vertex



beta2 encoding manipulation 0.7000000000000001

Fixing initial time: 0.7000000000000001 sec

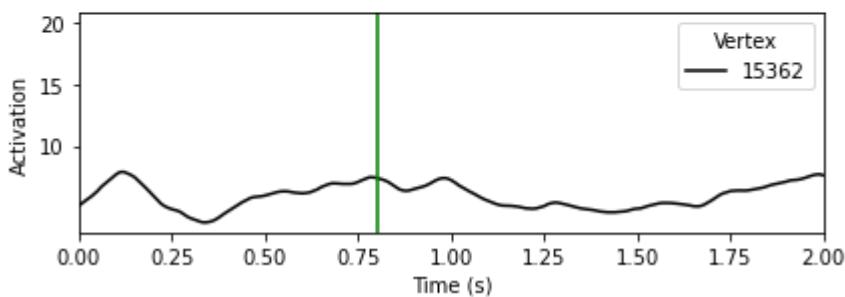
Showing: t = 0.700 s, (5.0, 65.0, -20.0) mm, [17, 36, 11] vox, 15362 vertex



beta2 encoding manipulation 0.8

Fixing initial time: 0.8 sec

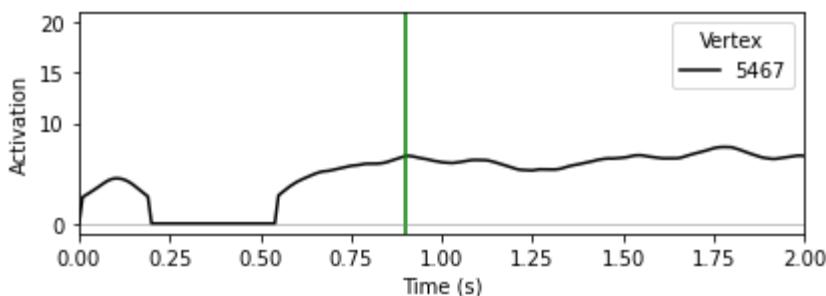
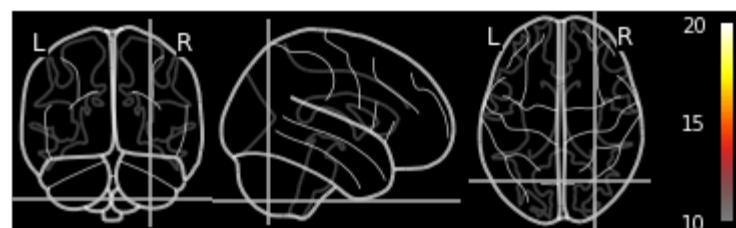
Showing: t = 0.800 s, (5.0, 65.0, -20.0) mm, [17, 36, 11] vox, 15362 vertex



beta2 encoding manipulation 0.9

Fixing initial time: 0.9 sec

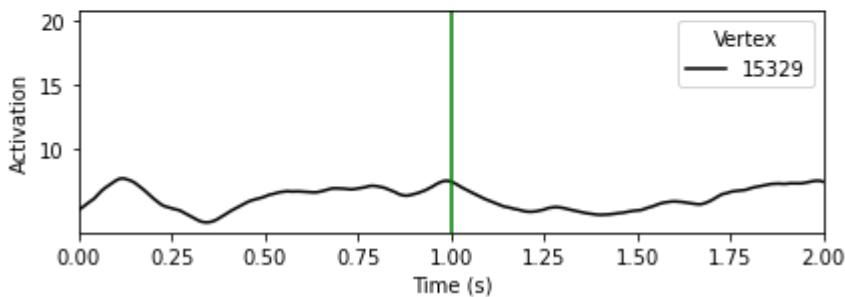
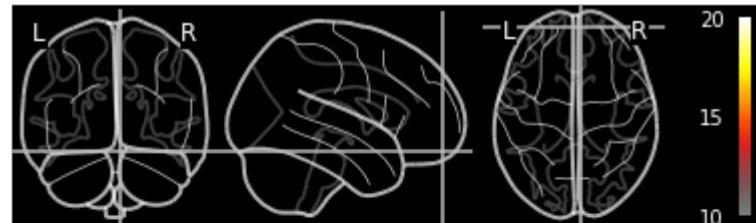
Showing: t = 0.900 s, (30.0, -70.0, -55.0) mm, [22, 9, 4] vox, 5467 vertex



beta2 encoding manipulation 1.0

Fixing initial time: 1.0 sec

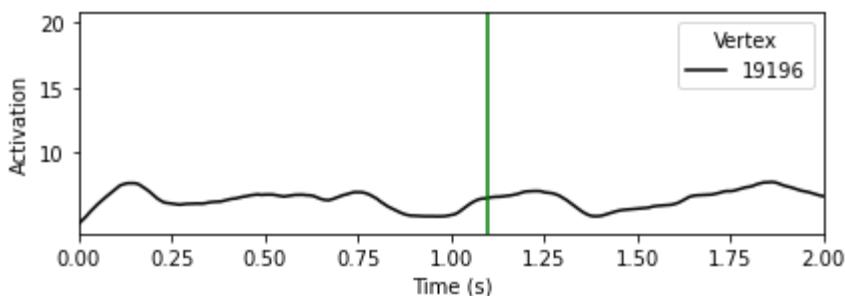
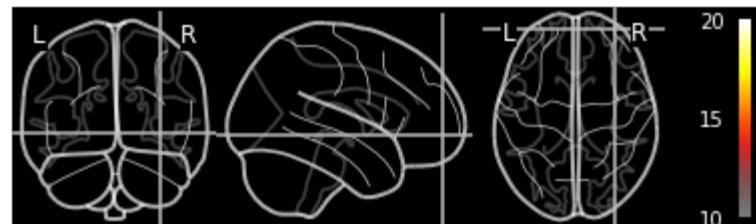
Showing: t = 1.000 s, (5.0, 60.0, -20.0) mm, [17, 35, 11] vox, 15329 vertex



beta2 encoding manipulation 1.1

Fixing initial time: 1.1 sec

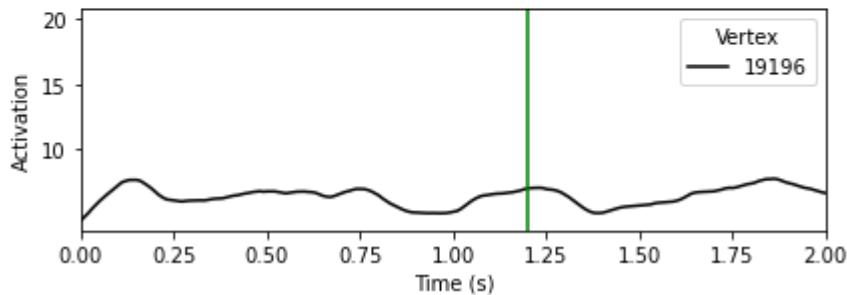
Showing: t = 1.100 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



beta2 encoding manipulation 1.2000000000000002

Fixing initial time: 1.2000000000000002 sec

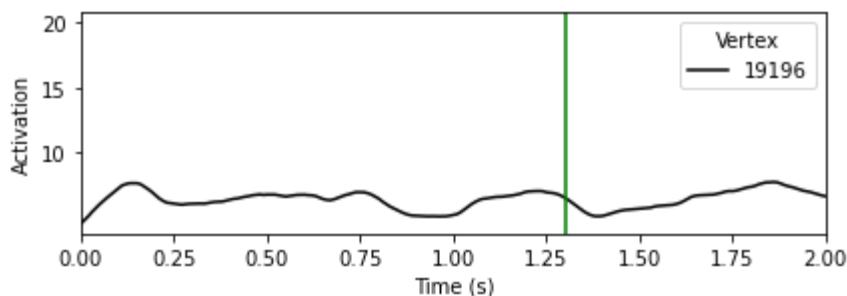
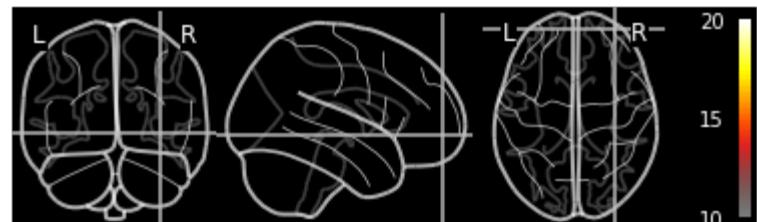
Showing: t = 1.200 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



beta2 encoding manipulation 1.3

Fixing initial time: 1.3 sec

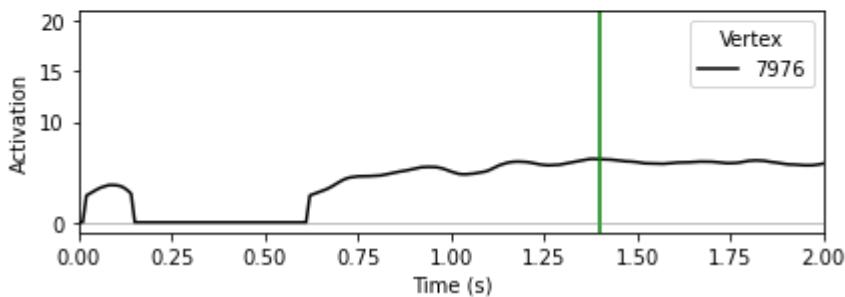
Showing: t = 1.300 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196 vertex



beta2 encoding manipulation 1.4000000000000001

Fixing initial time: 1.4000000000000001 sec

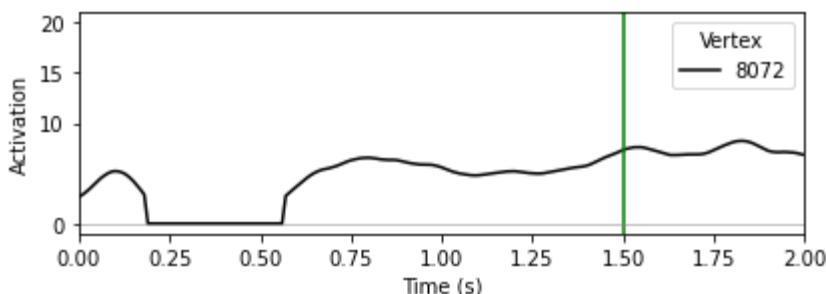
Showing: t = 1.400 s, (35.0, -80.0, -45.0) mm, [23, 7, 6] vox, 7976 vertex



beta2 encoding manipulation 1.5

Fixing initial time: 1.5 sec

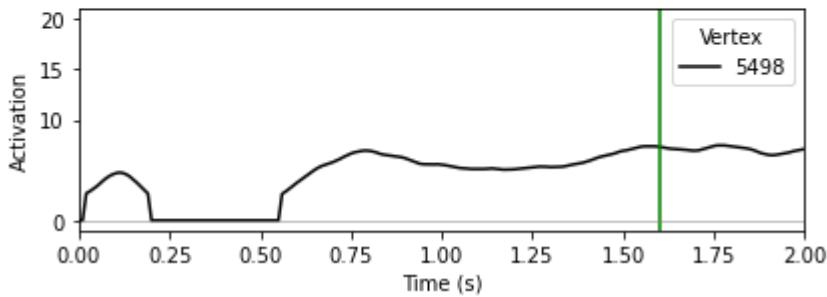
Showing: t = 1.500 s, (20.0, -65.0, -45.0) mm, [20, 10, 6] vox, 8072 vertex



beta2 encoding manipulation 1.6

Fixing initial time: 1.6 sec

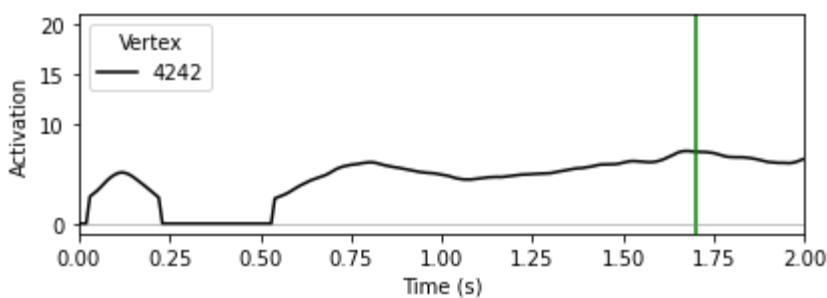
Showing: t = 1.600 s, (20.0, -65.0, -55.0) mm, [20, 10, 4] vox, 5498 vertex



beta2 encoding manipulation 1.7000000000000002

Fixing initial time: 1.7000000000000002 sec

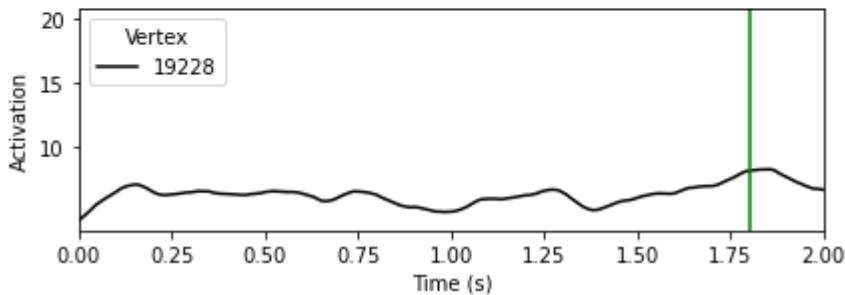
Showing: t = 1.700 s, (10.0, -60.0, -60.0) mm, [18, 11, 3] vox, 4242 vertex



beta2 encoding manipulation 1.8

Fixing initial time: 1.8 sec

Showing: t = 1.800 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228 vertex

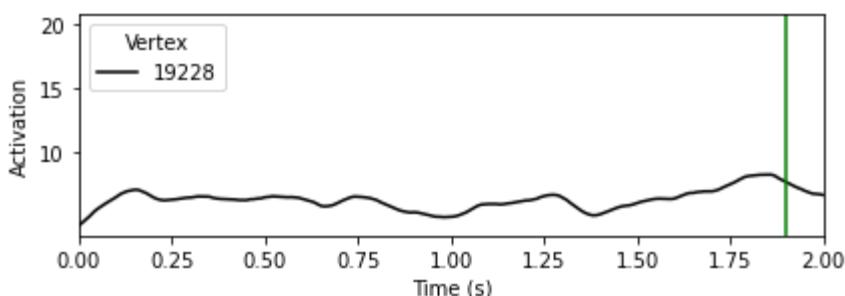
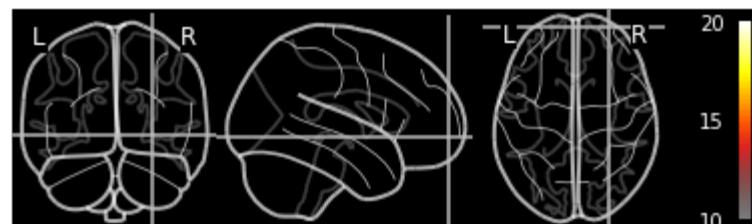


beta2 encoding manipulation 1.9000000000000001

Fixing initial time: 1.9000000000000001 sec

Showing: t = 1.900 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228

vertex

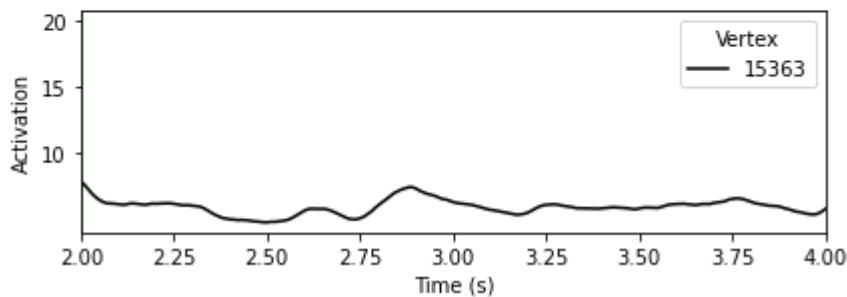
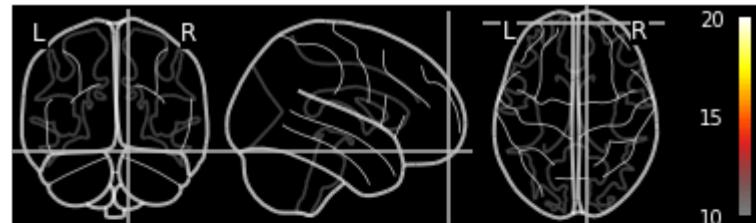


beta2 delay manipulation 2.0

Fixing initial time: 2.0 sec

Showing: t = 2.000 s, (10.0, 65.0, -20.0) mm, [18, 36, 11] vox, 15363

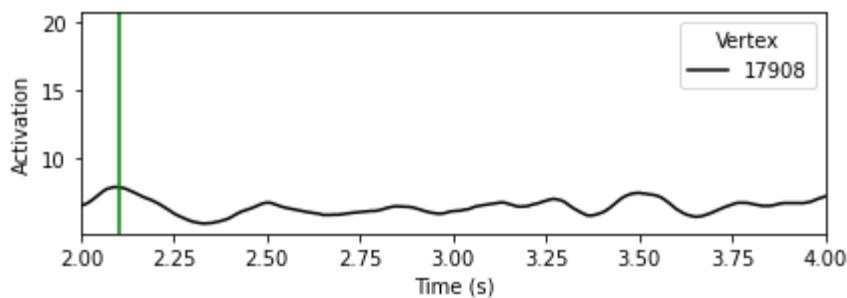
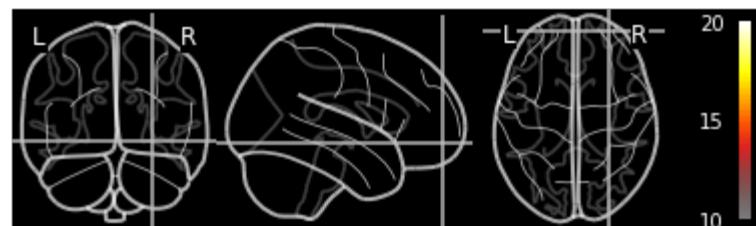
vertex



beta2 delay manipulation 2.1

Fixing initial time: 2.1 sec

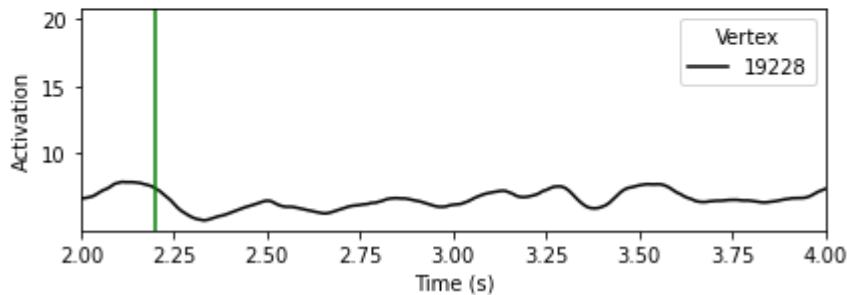
Showing: t = 2.100 s, (30.0, 60.0, -10.0) mm, [22, 35, 13] vox, 17908
vertex



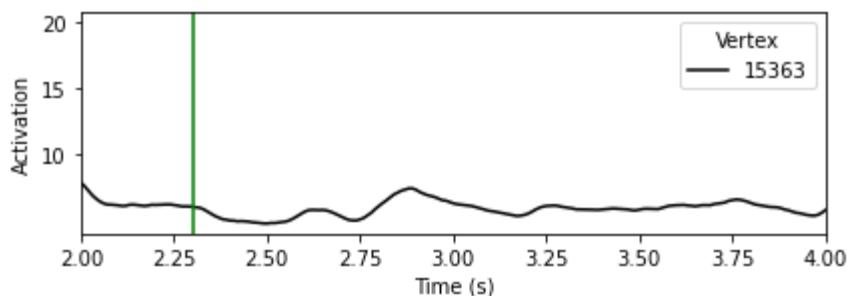
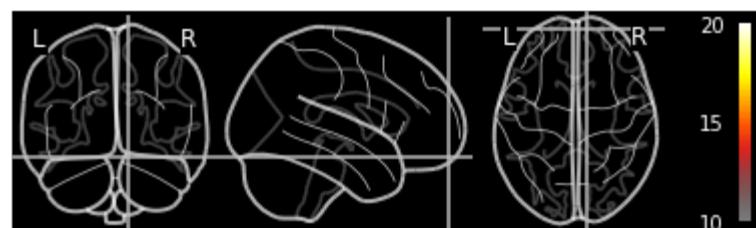
beta2 delay manipulation 2.2

Fixing initial time: 2.2 sec

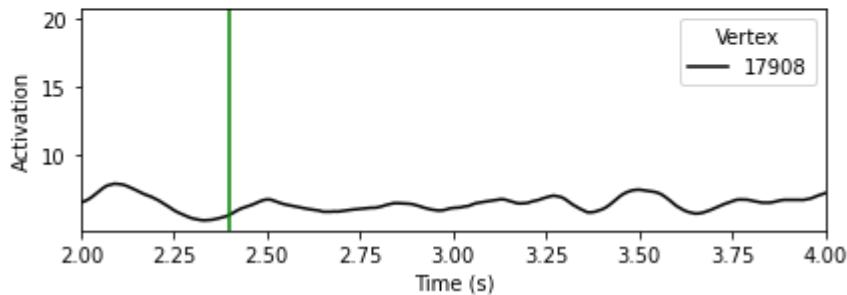
Showing: t = 2.200 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex



```
beta2 delay manipulation 2.3
Fixing initial time: 2.3 sec
Showing: t = 2.300 s, (10.0, 65.0, -20.0) mm, [18, 36, 11] vox, 15363
vertex
```



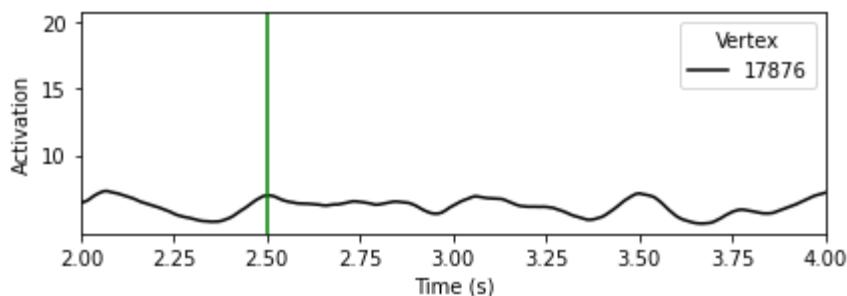
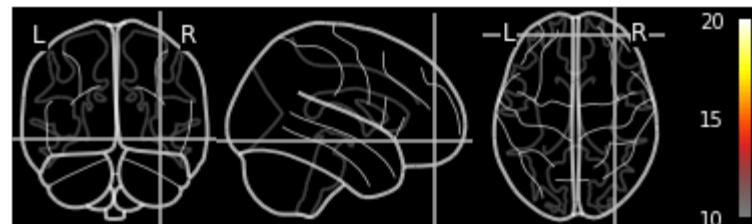
```
beta2 delay manipulation 2.4
Fixing initial time: 2.4 sec
Showing: t = 2.400 s, (30.0, 60.0, -10.0) mm, [22, 35, 13] vox, 17908
vertex
```



beta2 delay manipulation 2.5

Fixing initial time: 2.5 sec

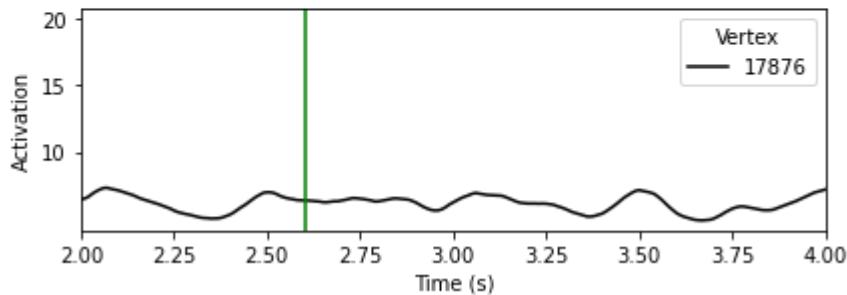
Showing: t = 2.500 s, (35.0, 55.0, -10.0) mm, [23, 34, 13] vox, 17876
vertex



beta2 delay manipulation 2.6

Fixing initial time: 2.6 sec

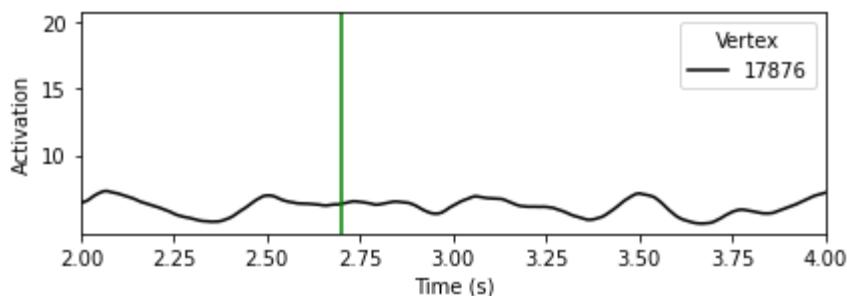
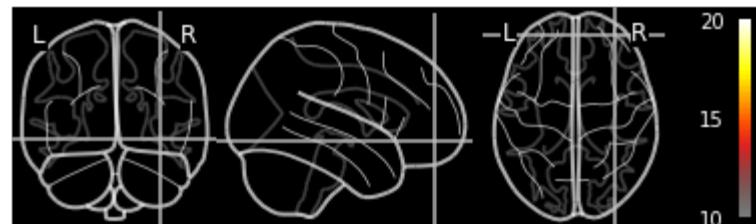
Showing: t = 2.600 s, (35.0, 55.0, -10.0) mm, [23, 34, 13] vox, 17876
vertex



beta2 delay manipulation 2.7

Fixing initial time: 2.7 sec

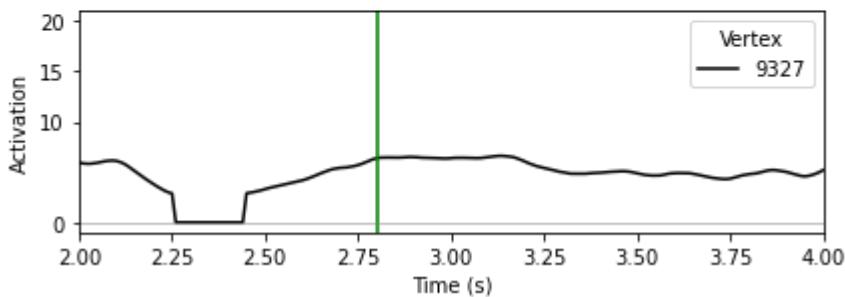
Showing: t = 2.700 s, (35.0, 55.0, -10.0) mm, [23, 34, 13] vox, 17876 vertex



beta2 delay manipulation 2.8

Fixing initial time: 2.8 sec

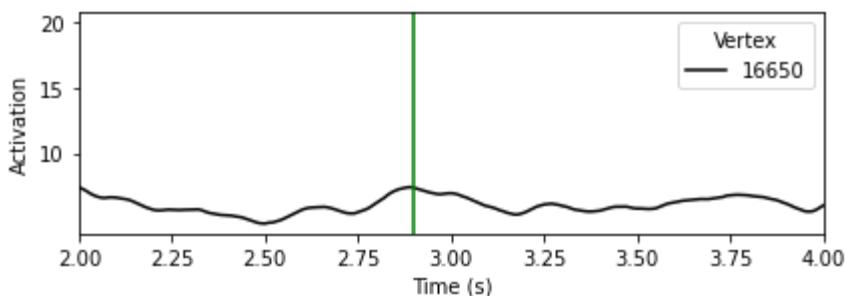
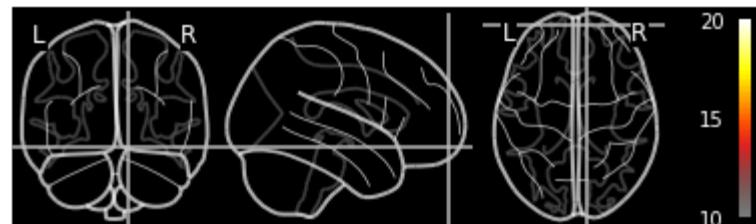
Showing: t = 2.800 s, (25.0, -70.0, -40.0) mm, [21, 9, 7] vox, 9327 vertex



beta2 delay manipulation 2.9

Fixing initial time: 2.9 sec

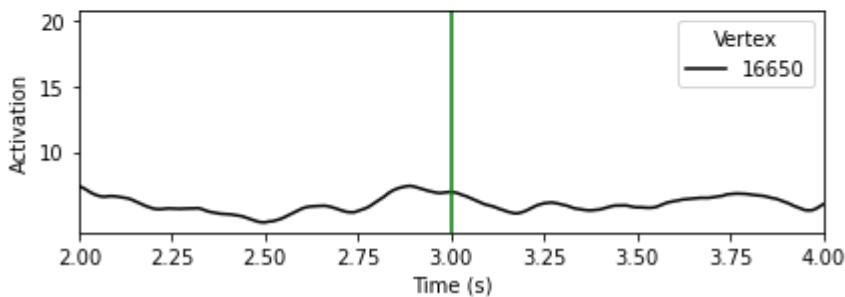
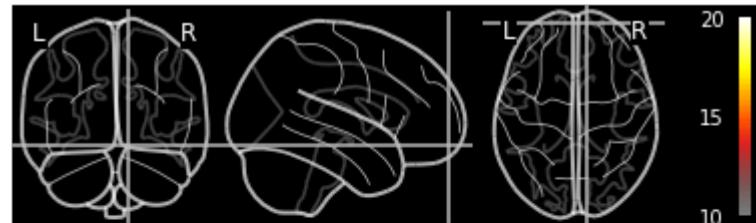
Showing: t = 2.900 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650
vertex



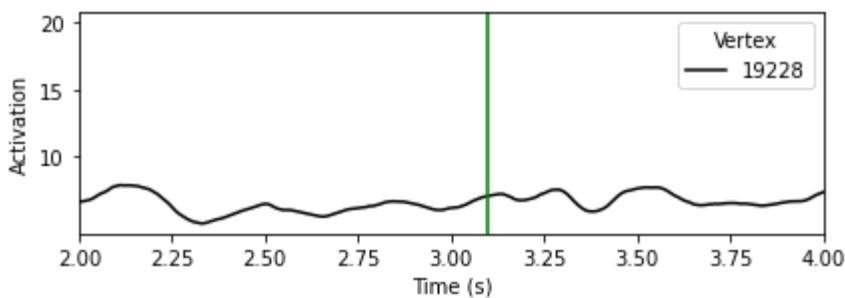
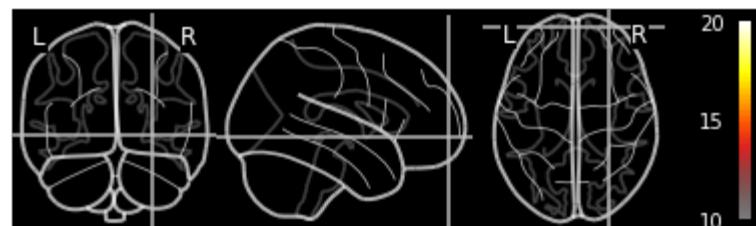
beta2 delay manipulation 3.0

Fixing initial time: 3.0 sec

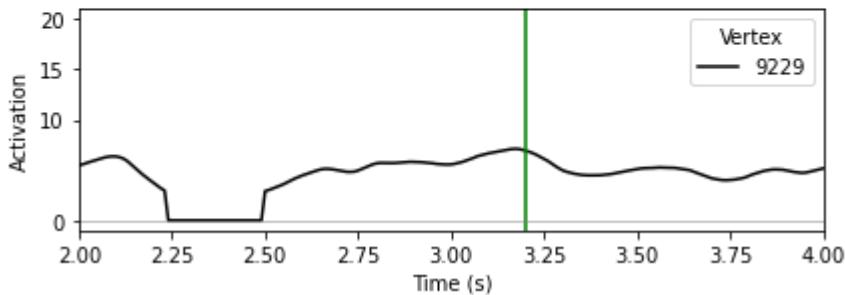
Showing: t = 3.000 s, (10.0, 65.0, -15.0) mm, [18, 36, 12] vox, 16650
vertex



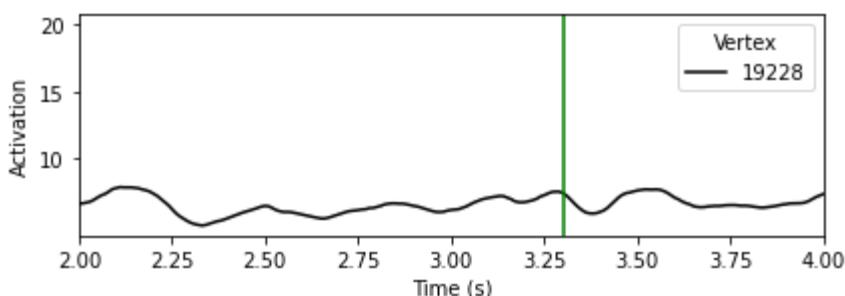
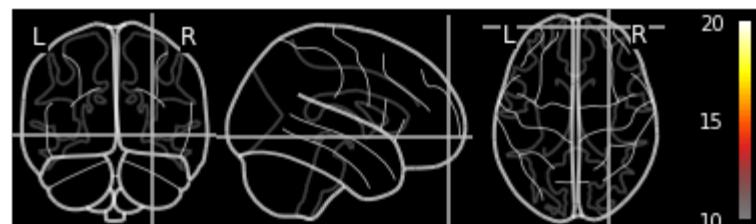
```
beta2 delay manipulation 3.1
Fixing initial time: 3.1 sec
Showing: t = 3.100 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex
```



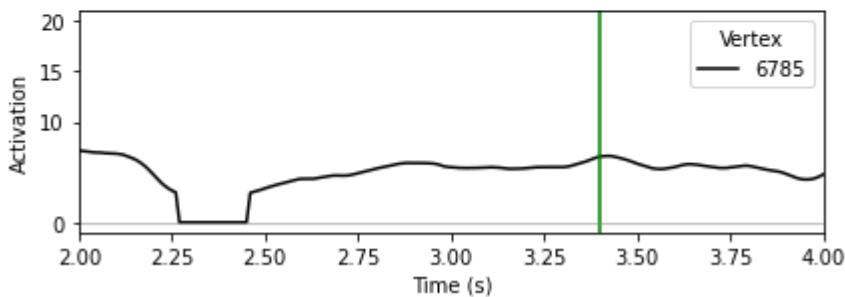
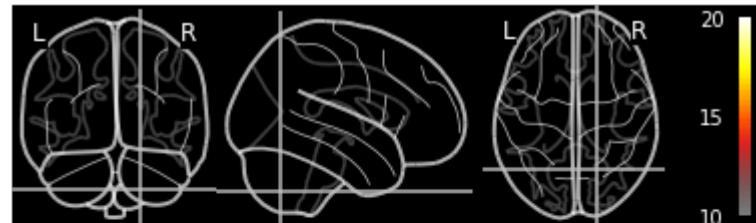
```
beta2 delay manipulation 3.2
Fixing initial time: 3.2 sec
Showing: t = 3.200 s, (30.0, -85.0, -40.0) mm, [22, 6, 7] vox, 9229 v
ertex
```



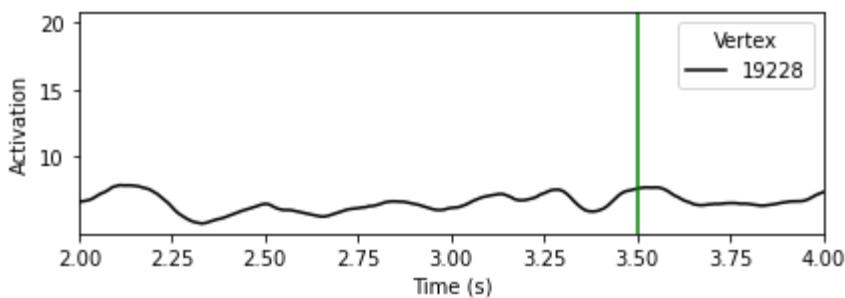
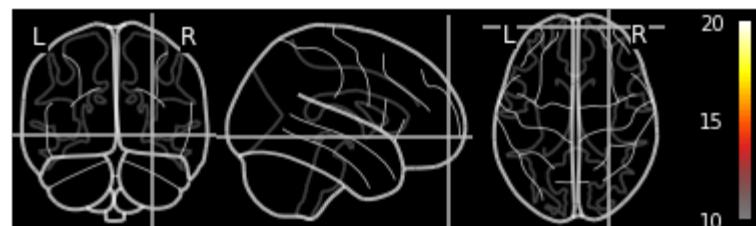
beta2 delay manipulation 3.3
Fixing initial time: 3.3 sec
Showing: t = 3.300 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex



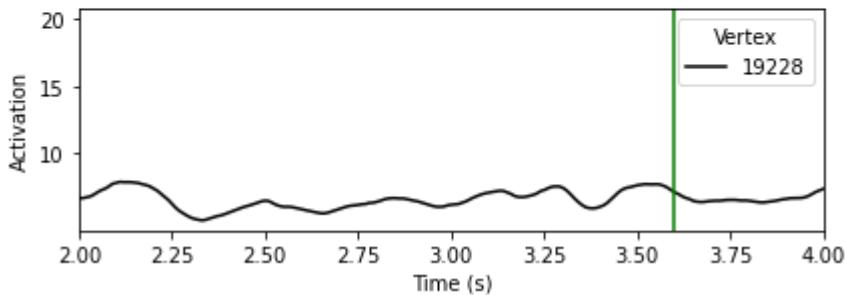
beta2 delay manipulation 3.4000000000000004
Fixing initial time: 3.4000000000000004 sec
Showing: t = 3.400 s, (20.0, -65.0, -50.0) mm, [20, 10, 5] vox, 6785
vertex



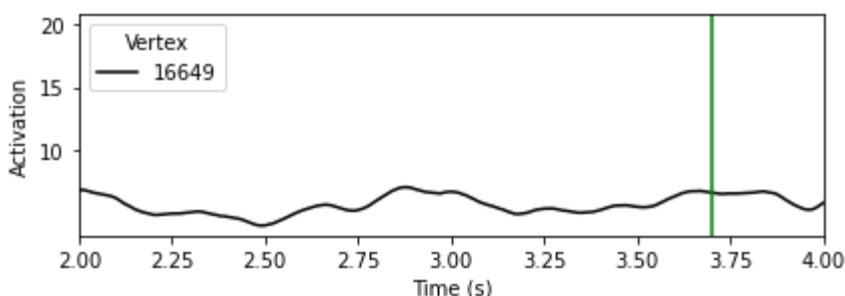
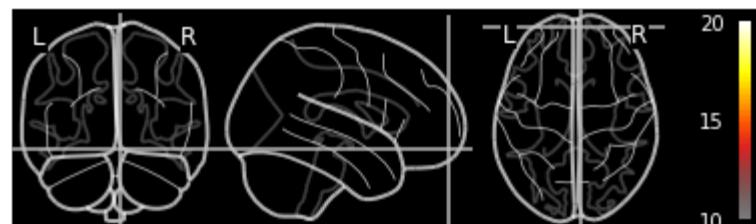
beta2 delay manipulation 3.5
Fixing initial time: 3.5 sec
Showing: t = 3.500 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex



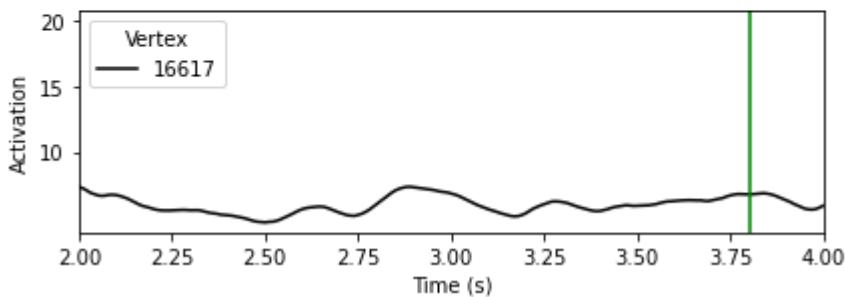
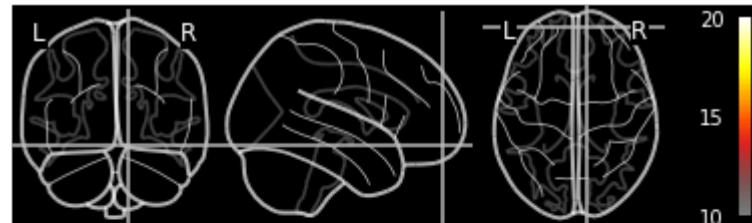
beta2 delay manipulation 3.6
Fixing initial time: 3.6 sec
Showing: t = 3.600 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228
vertex



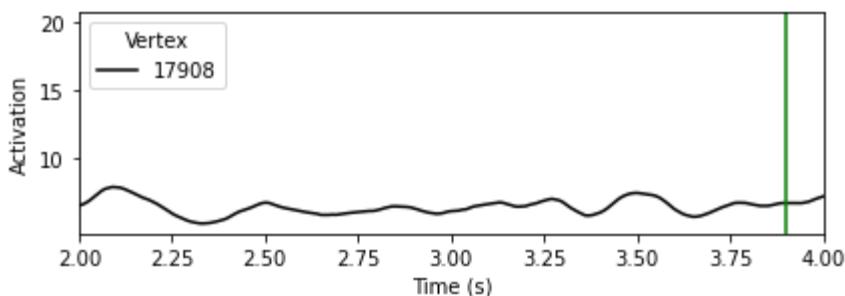
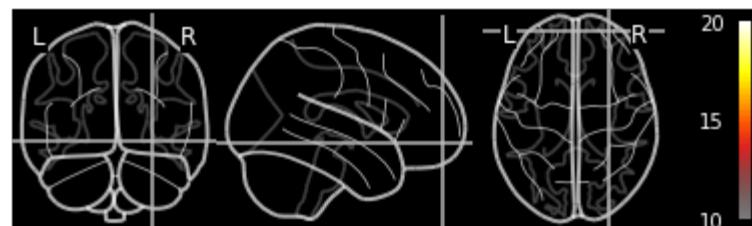
beta2 delay manipulation 3.7
Fixing initial time: 3.7 sec
Showing: t = 3.700 s, (5.0, 65.0, -15.0) mm, [17, 36, 12] vox, 16649
vertex



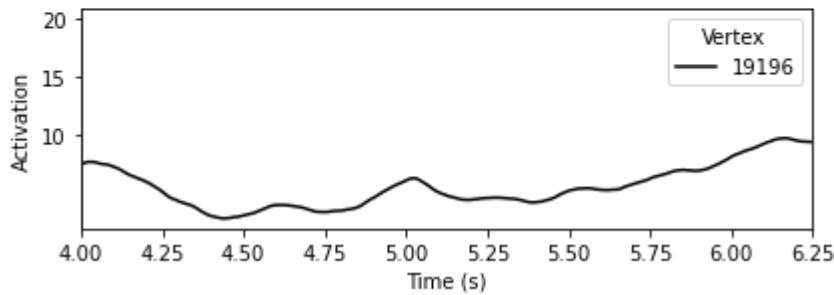
beta2 delay manipulation 3.8
Fixing initial time: 3.8 sec
Showing: t = 3.800 s, (10.0, 60.0, -15.0) mm, [18, 35, 12] vox, 16617
vertex



```
beta2 delay manipulation 3.9000000000000004
Fixing initial time: 3.9000000000000004 sec
Showing: t = 3.900 s, (30.0, 60.0, -10.0) mm, [22, 35, 13] vox, 17908
vertex
```



```
beta2 recall manipulation 4.0
Fixing initial time: 4.0 sec
Showing: t = 4.000 s, (35.0, 60.0, -5.0) mm, [23, 35, 14] vox, 19196
vertex
```

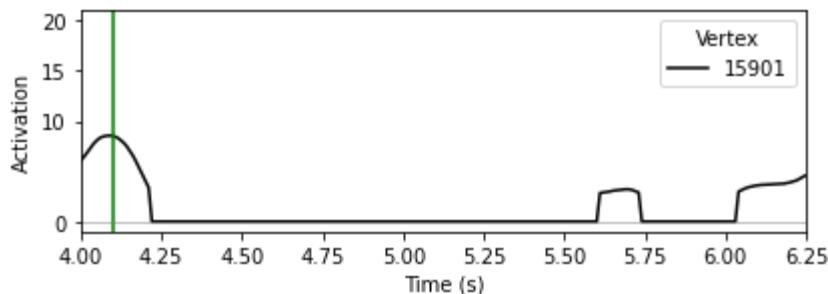
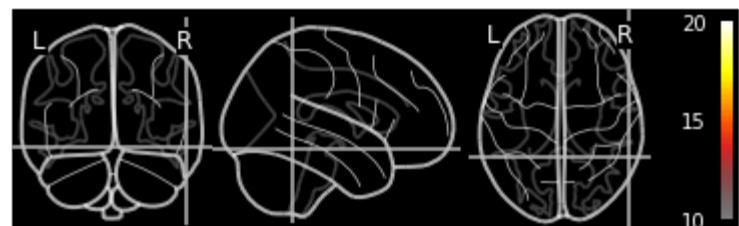


beta2 recall manipulation 4.1

Fixing initial time: 4.1 sec

Showing: t = 4.100 s, (60.0, -50.0, -15.0) mm, [28, 13, 12] vox, 1590

1 vertex

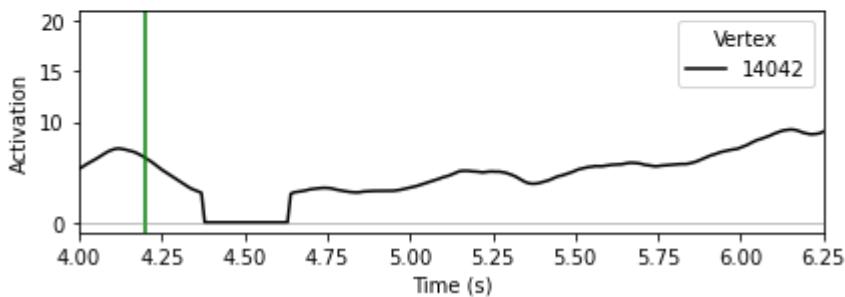
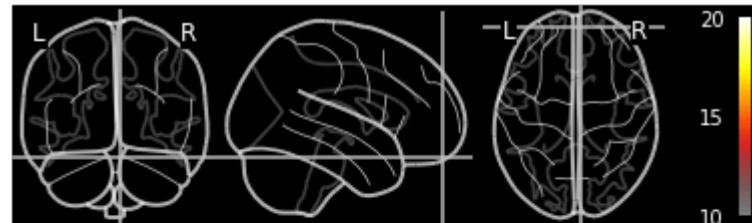


beta2 recall manipulation 4.2

Fixing initial time: 4.2 sec

Showing: t = 4.200 s, (5.0, 60.0, -25.0) mm, [17, 35, 10] vox, 14042

vertex

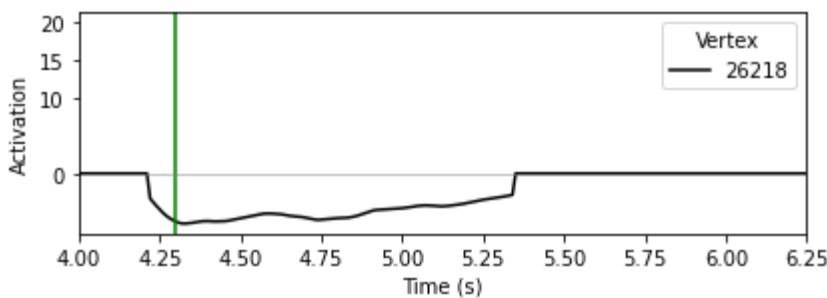


beta2 recall manipulation 4.3

Fixing initial time: 4.3 sec

Showing: t = 4.300 s, (0.0, -45.0, 25.0) mm, [16, 14, 20] vox, 26218

vertex

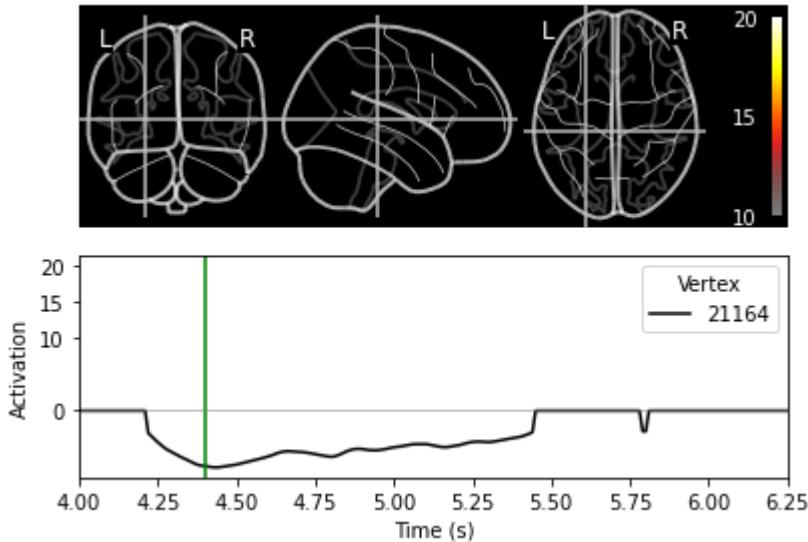


beta2 recall manipulation 4.4

Fixing initial time: 4.4 sec

Showing: t = 4.400 s, (-25.0, -30.0, 5.0) mm, [11, 17, 16] vox, 21164

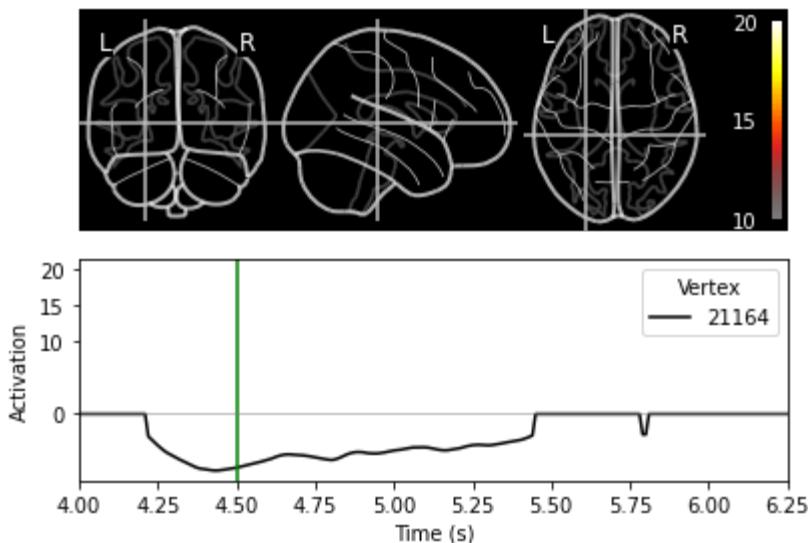
vertex



beta2 recall manipulation 4.5

Fixing initial time: 4.5 sec

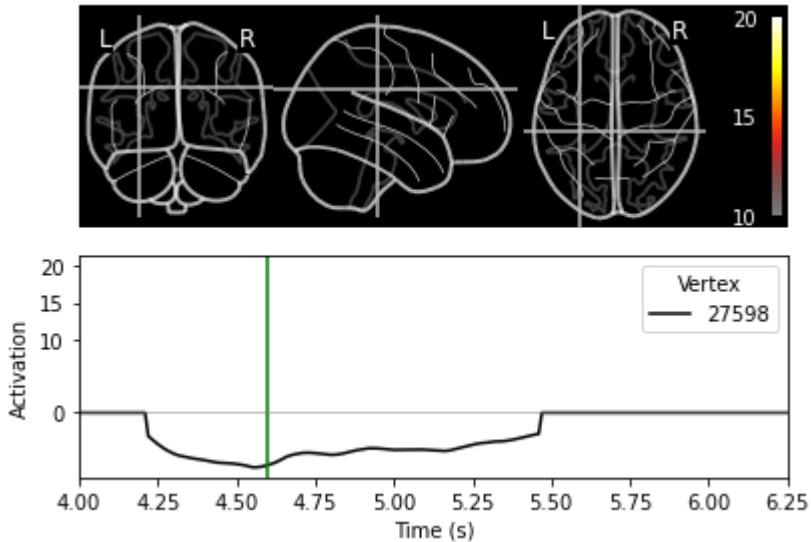
Showing: t = 4.500 s, (-25.0, -30.0, 5.0) mm, [11, 17, 16] vox, 21164
vertex



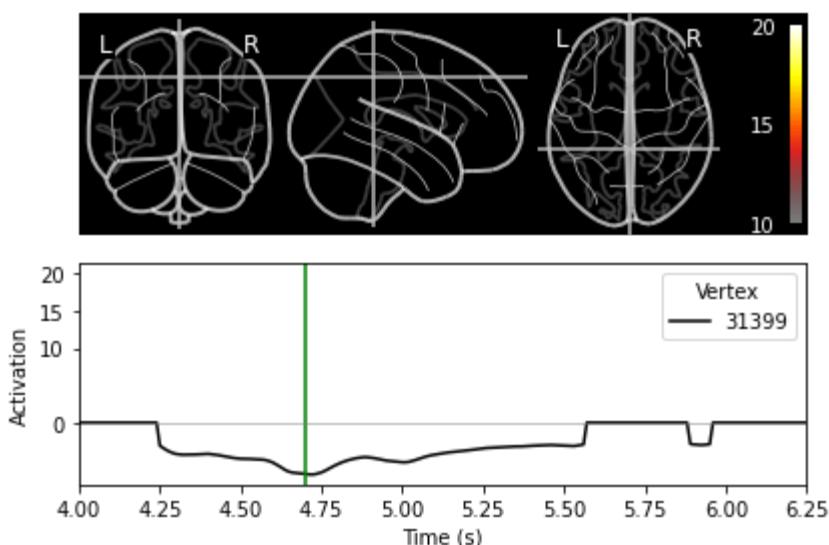
beta2 recall manipulation 4.6

Fixing initial time: 4.6 sec

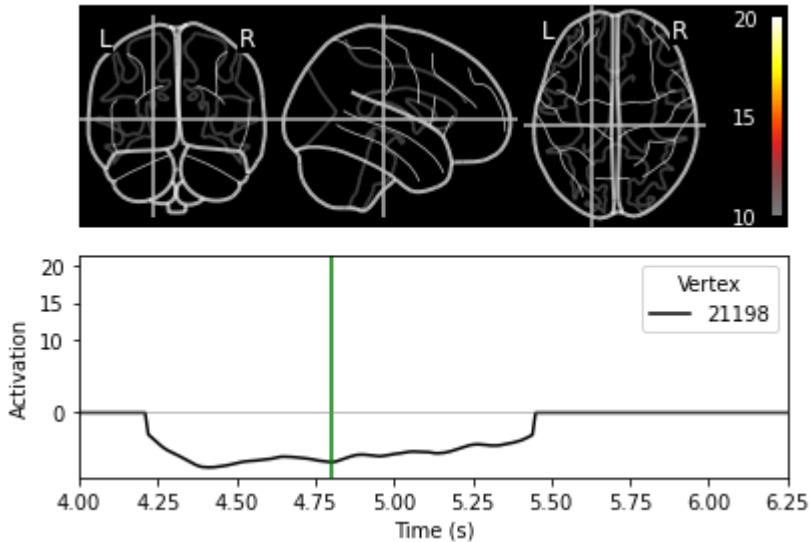
Showing: t = 4.600 s, (-30.0, -30.0, 30.0) mm, [10, 17, 21] vox, 2759
8 vertex



```
beta2 recall manipulation 4.7
Fixing initial time: 4.7 sec
Showing: t = 4.700 s, (0.0, -40.0, 45.0) mm, [16, 15, 24] vox, 31399
vertex
```



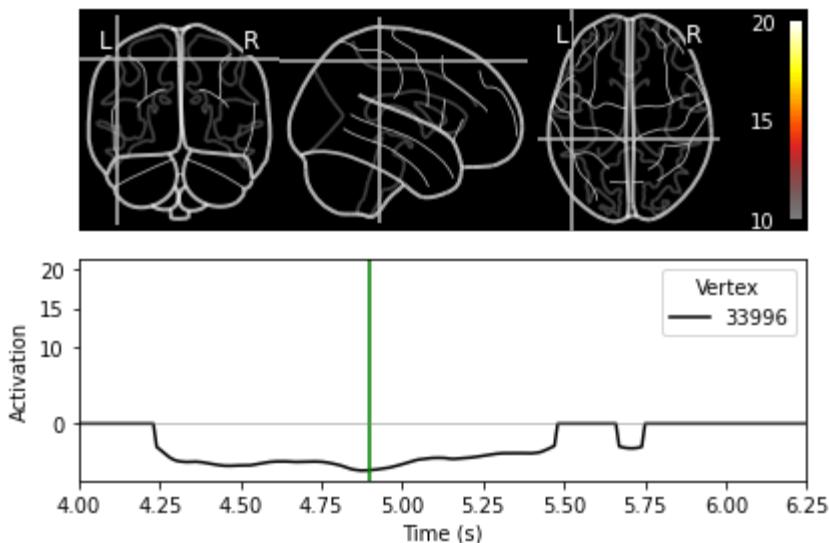
```
beta2 recall manipulation 4.8
Fixing initial time: 4.8 sec
Showing: t = 4.800 s, (-20.0, -25.0, 5.0) mm, [12, 18, 16] vox, 21198
vertex
```



beta2 recall manipulation 4.9

Fixing initial time: 4.9 sec

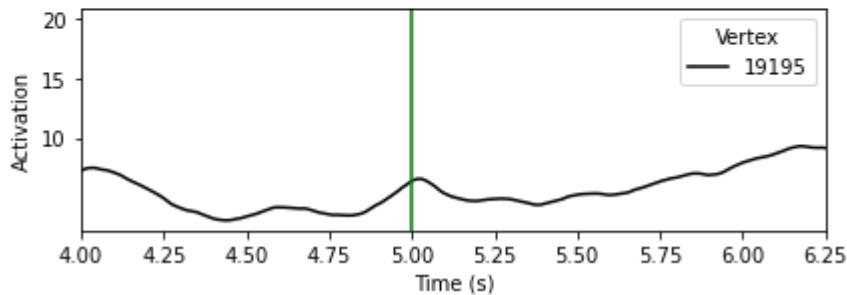
Showing: t = 4.900 s, (-50.0, -35.0, 55.0) mm, [6, 16, 26] vox, 33996
vertex



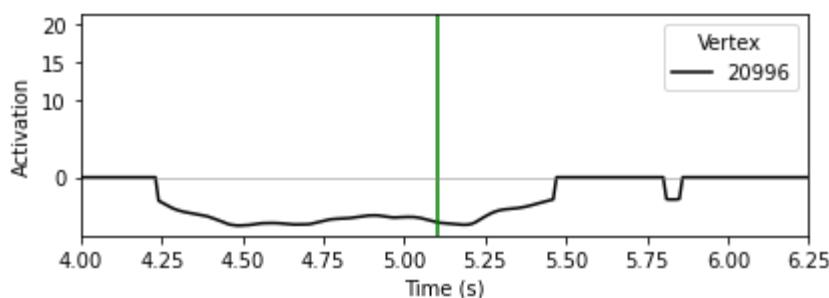
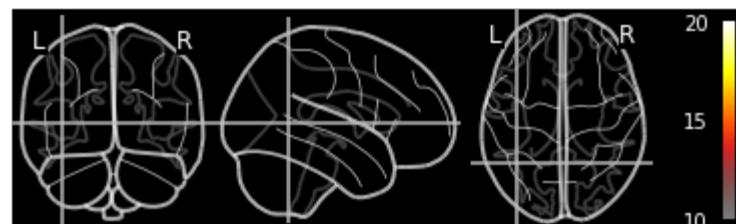
beta2 recall manipulation 5.0

Fixing initial time: 5.0 sec

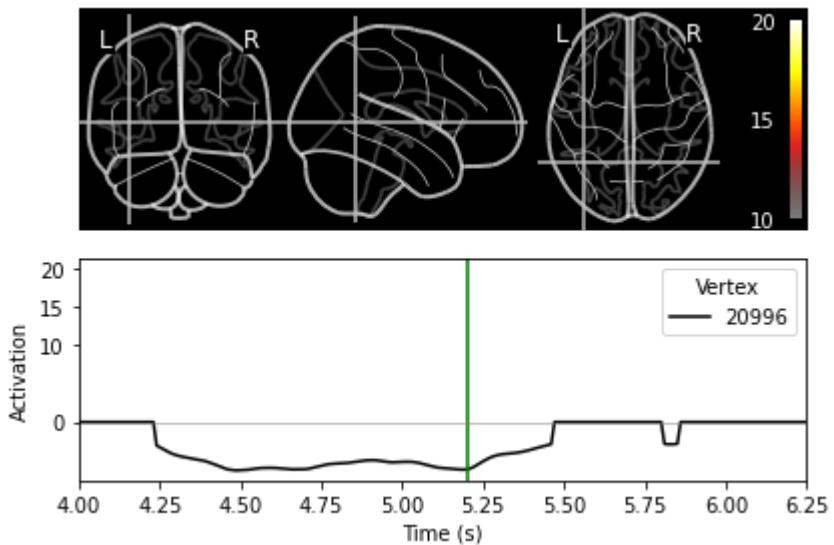
Showing: t = 5.000 s, (30.0, 60.0, -5.0) mm, [22, 35, 14] vox, 19195
vertex



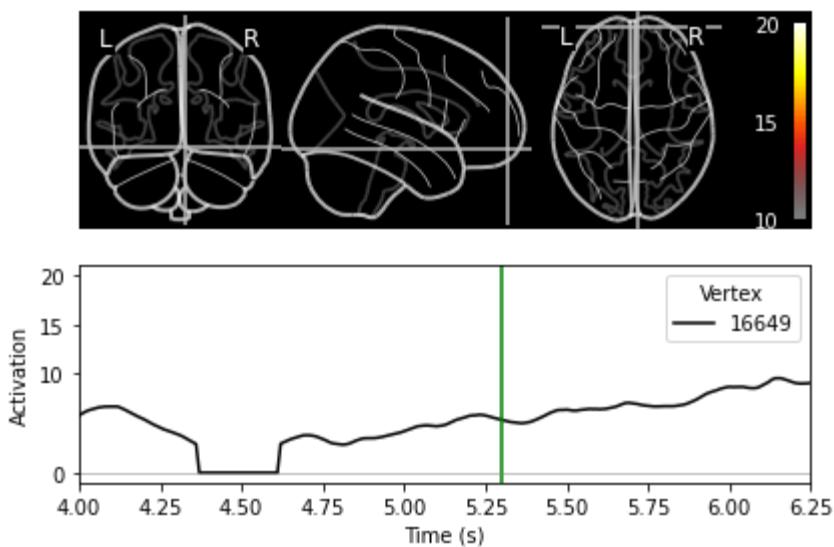
```
beta2 recall manipulation 5.1
Fixing initial time: 5.1 sec
Showing: t = 5.100 s, (-40.0, -55.0, 5.0) mm, [8, 12, 16] vox, 20996
vertex
```



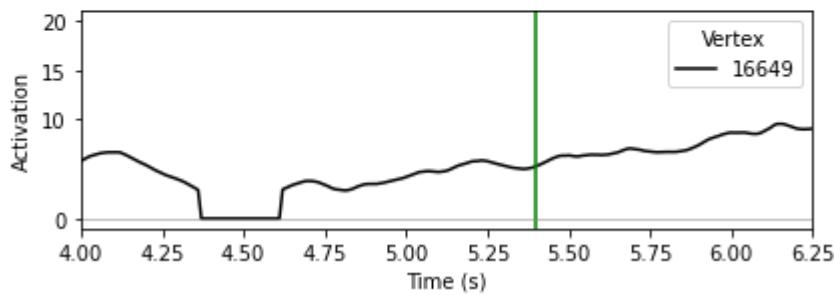
```
beta2 recall manipulation 5.2
Fixing initial time: 5.2 sec
Showing: t = 5.200 s, (-40.0, -55.0, 5.0) mm, [8, 12, 16] vox, 20996
vertex
```



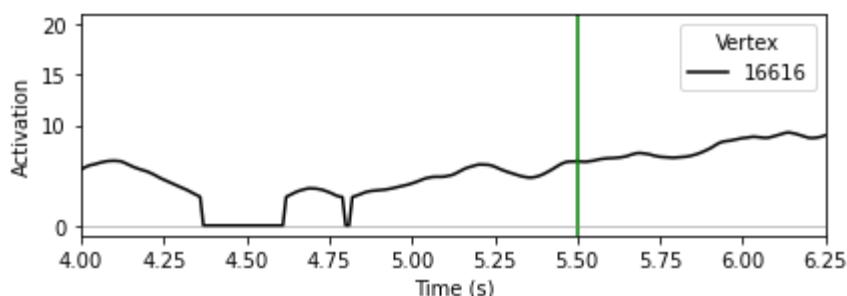
```
beta2 recall manipulation 5.3
Fixing initial time: 5.3 sec
Showing: t = 5.300 s, (5.0, 65.0, -15.0) mm, [17, 36, 12] vox, 16649
vertex
```



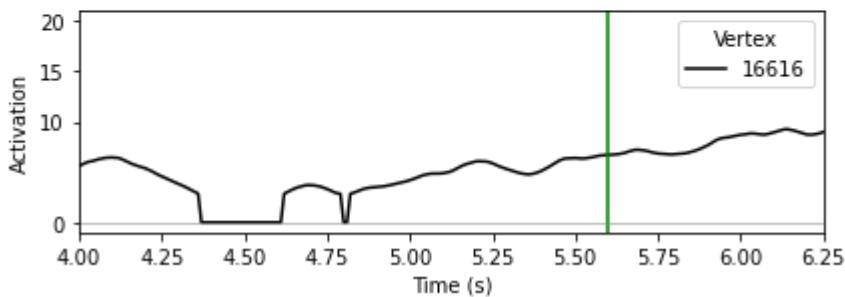
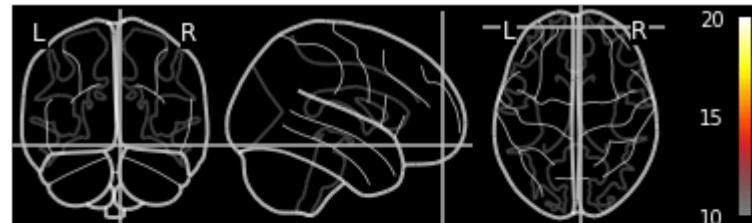
```
beta2 recall manipulation 5.4
Fixing initial time: 5.4 sec
Showing: t = 5.400 s, (5.0, 65.0, -15.0) mm, [17, 36, 12] vox, 16649
vertex
```



```
beta2 recall manipulation 5.5
Fixing initial time: 5.5 sec
Showing: t = 5.500 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616
vertex
```



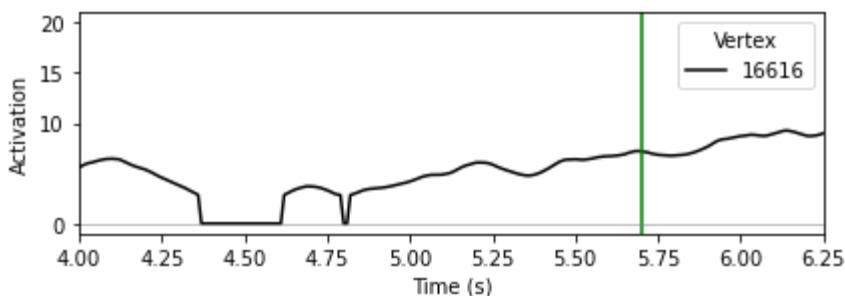
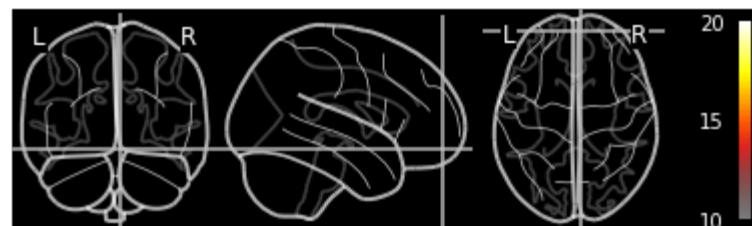
```
beta2 recall manipulation 5.6
Fixing initial time: 5.6 sec
Showing: t = 5.600 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616
vertex
```



beta2 recall manipulation 5.7

Fixing initial time: 5.7 sec

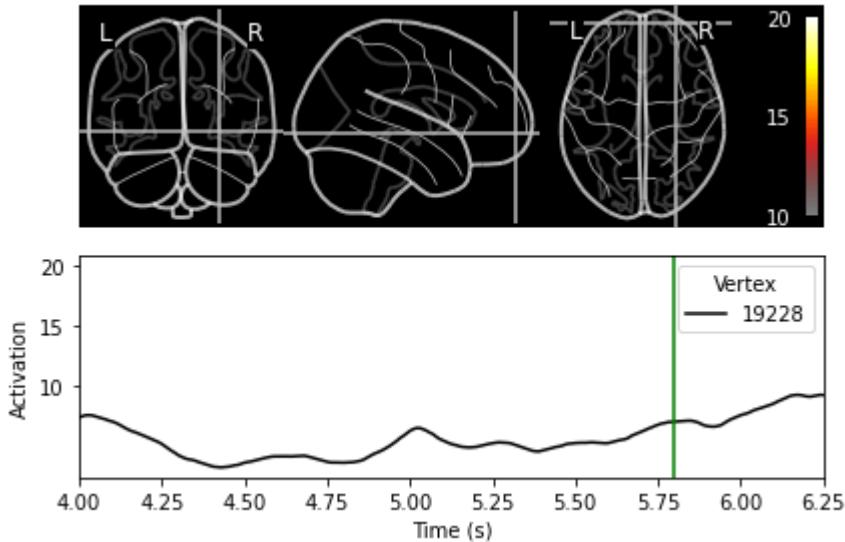
Showing: t = 5.700 s, (5.0, 60.0, -15.0) mm, [17, 35, 12] vox, 16616 vertex



beta2 recall manipulation 5.8

Fixing initial time: 5.8 sec

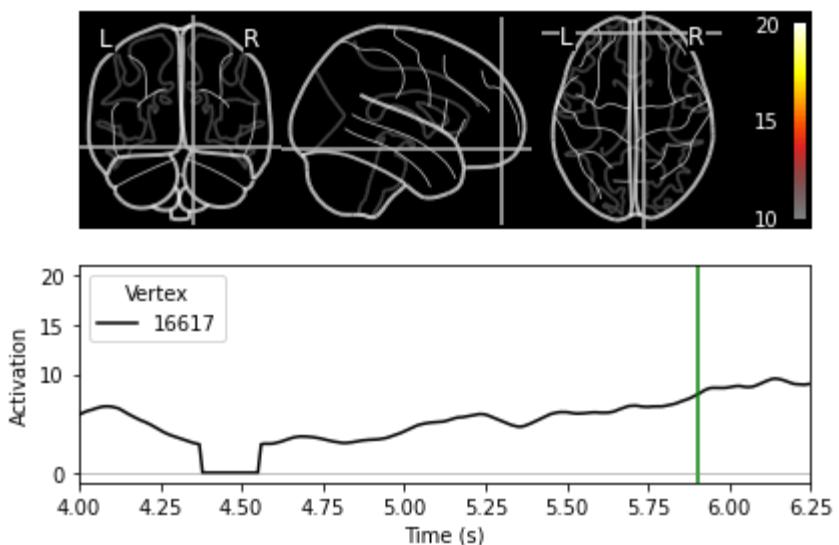
Showing: t = 5.800 s, (30.0, 65.0, -5.0) mm, [22, 36, 14] vox, 19228 vertex



beta2 recall manipulation 5.9

Fixing initial time: 5.9 sec

Showing: t = 5.900 s, (10.0, 60.0, -15.0) mm, [18, 35, 12] vox, 16617
vertex



In []: