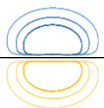
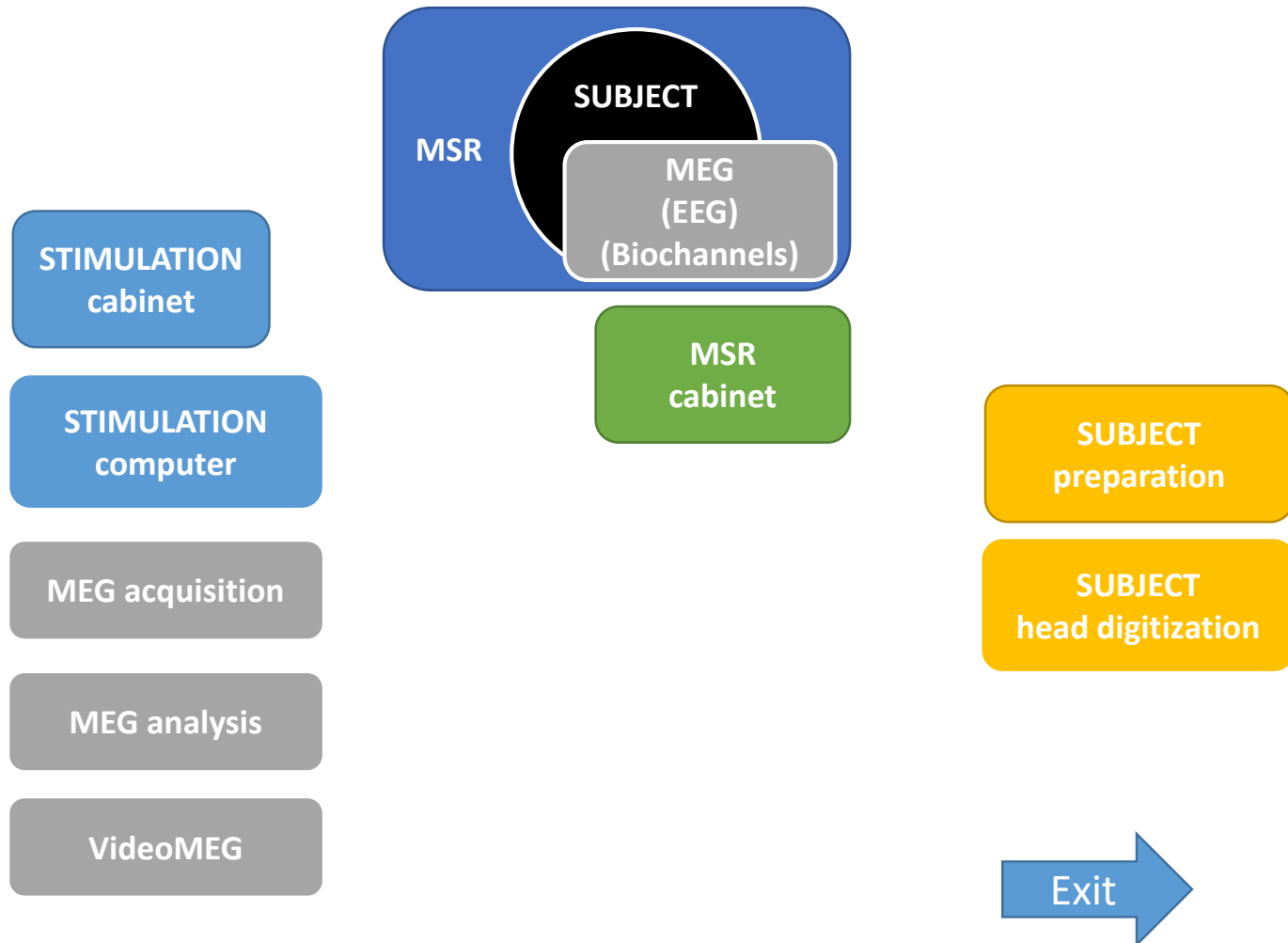


Module: Preparing the lab I

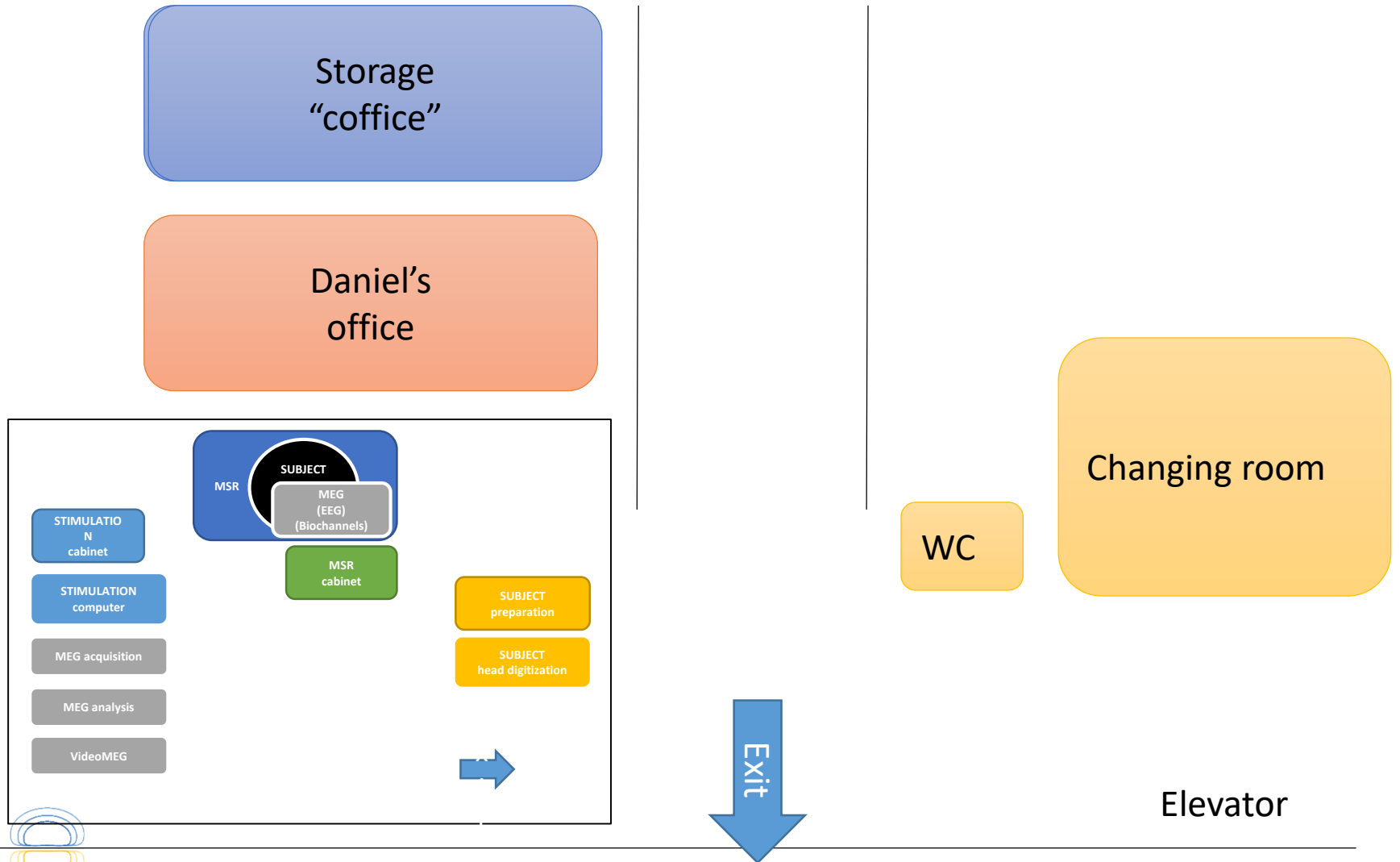
- Find your way in the lab and prepare equipment



Finding your way in the lab



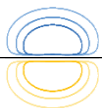
Finding your way in the lab



Quick-Checklist

What equipment do I need to prepare?

- *My experimental set-up*
- MSR
- Acquisition
- Electrodes and HPI-coils
- Sound and intercom
- Set-up acquisition
- Set-up paradigm/stimulation



Preparing the MSR

The MSR

All MEG/EEG recordings are done within a two-layer MSR, model Ak3B from Vacuumschmelze GmbH.

Contains:

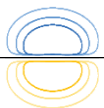
- MEG scanner
- Experimental setup



Preparing the MSR

Gantry position

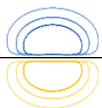
- Supine
- Seated



Preparing the MSR

Checklist

- Screen
 - Adjust mirror
 - Turn projector on
- Pillows and cushions
- Additional electrodes and sensors
- Ear pieces for sound tubes
- ...*whatever you need*



Preparing the MSR

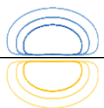
Open door

- Press (hold 1 s)
- Pull door

Close door

- Push
- Press
- Check door is closed

Adjust light in MSR



Preparing the MSR

Make sure the door is completely sealed when recording!

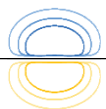
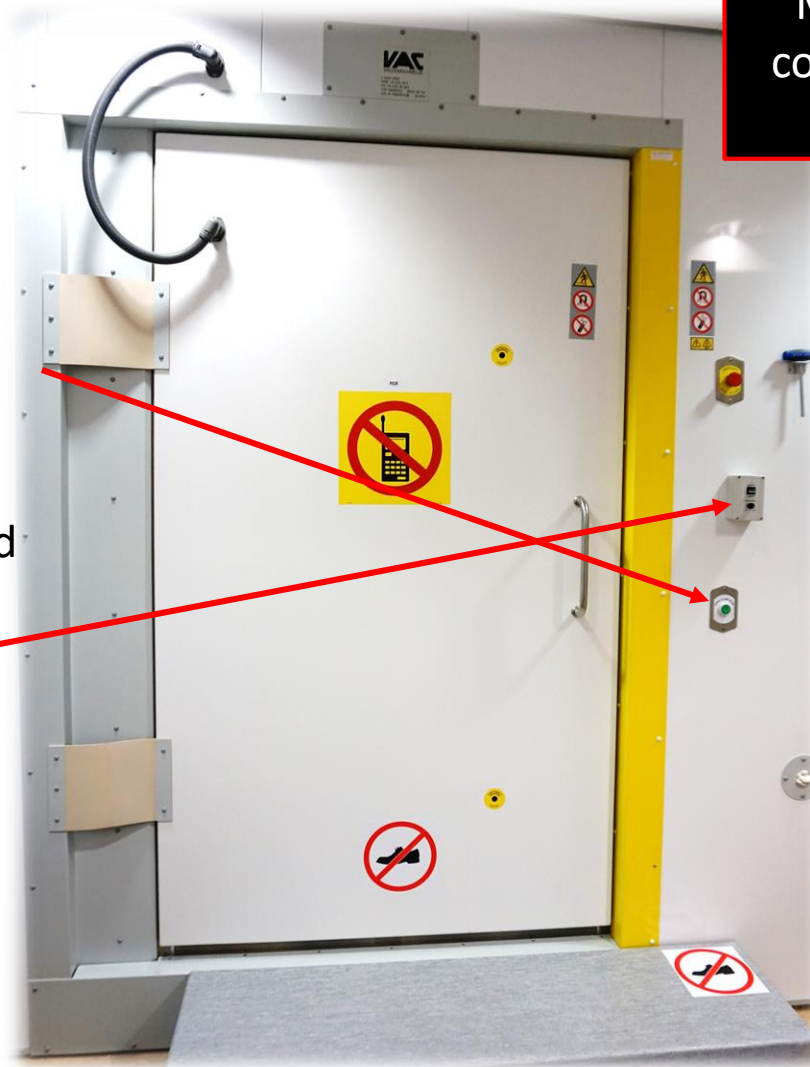
Open door

- Press (hold 1 s)
- Pull door

Close door

- Push
- Press
- Check door is closed

Adjust light in MSR



Preparing the MSR

Open door

- Press (hold 1 s)
- Pull door

Close door

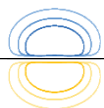
- Push
- Press
- Check door is closed

Adjust light in MSR



Emergency

1. Release pressure
2. Use manual release



Preparing the MSR

Open door

- Press (hold 1 s)
- Pull door

Close door

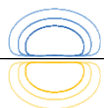
- Push
- Press
- Check door is closed

Adjust light in MSR



Emergency

1. Release pressure
2. Use manual release





Checklist

Have I left ALL metal in the outside area?

- Phone
- Watch
- Belt
- Wallet
- Empty pockets: Keys, coins, etc.
- Access card

Change shoes or wear cover



Finding your way in the lab

Know where things are in the outside area:

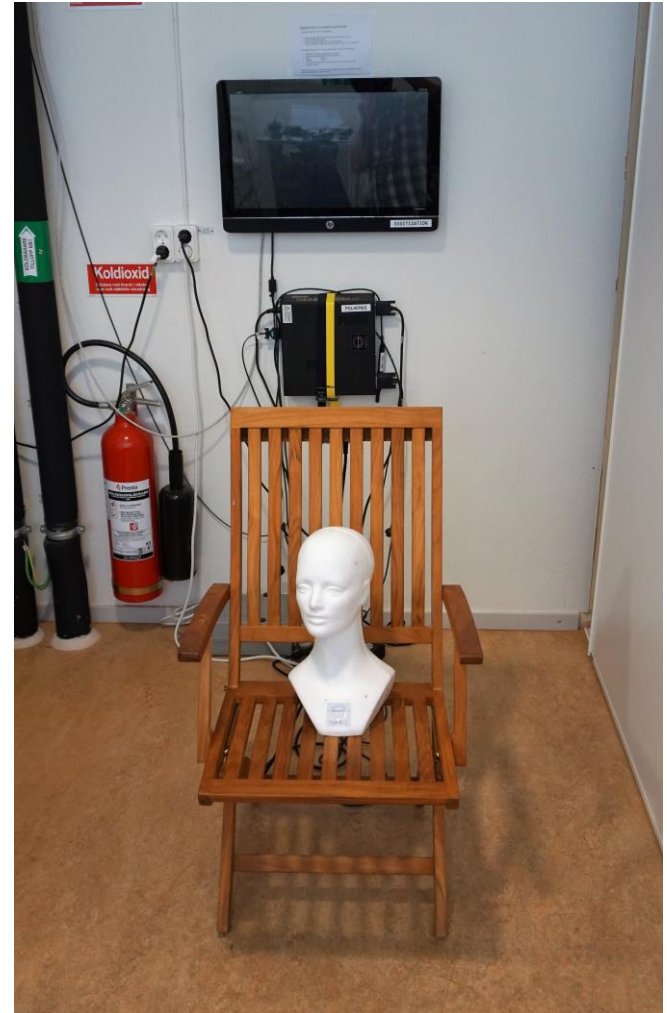
- Preparation area
- Preparation utilities
- Stimulation cabinet
- MSR cabinet
- Stimulation/eye-tracking PC
- Acquisition PC



Finding your way in the lab

Preparation area

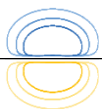
- Electrodes (EOG/ECG/etc.)
- HPI coils
- Aux. Measurements
- Pholemus



Finding your way in the lab

Preparation area

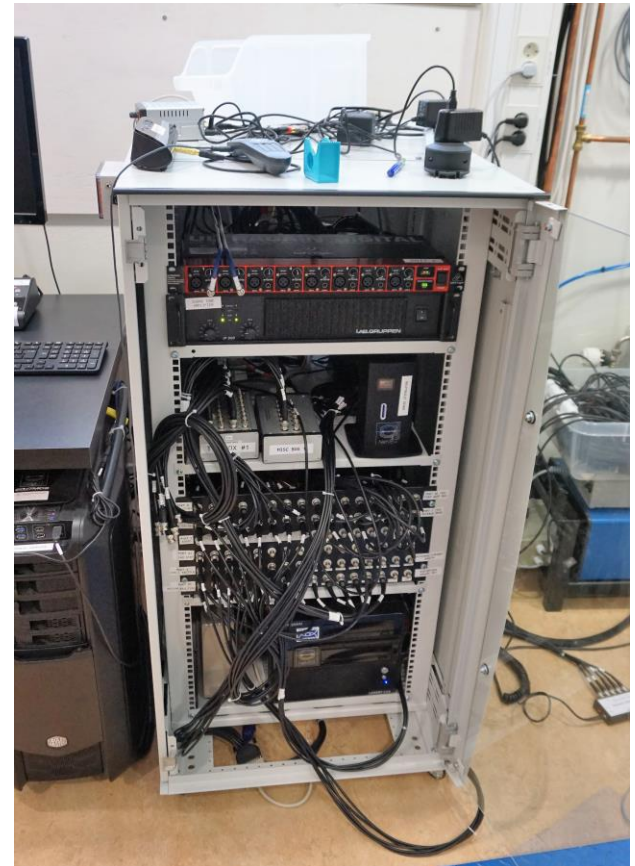
- EEG cabs
- GSR
- Accelerometers
- Respiration
- Cleaning/disinfection alcohol
- Extra electrodes/gel/tape/etc.



Finding your way in the lab

Stimulation cabinet

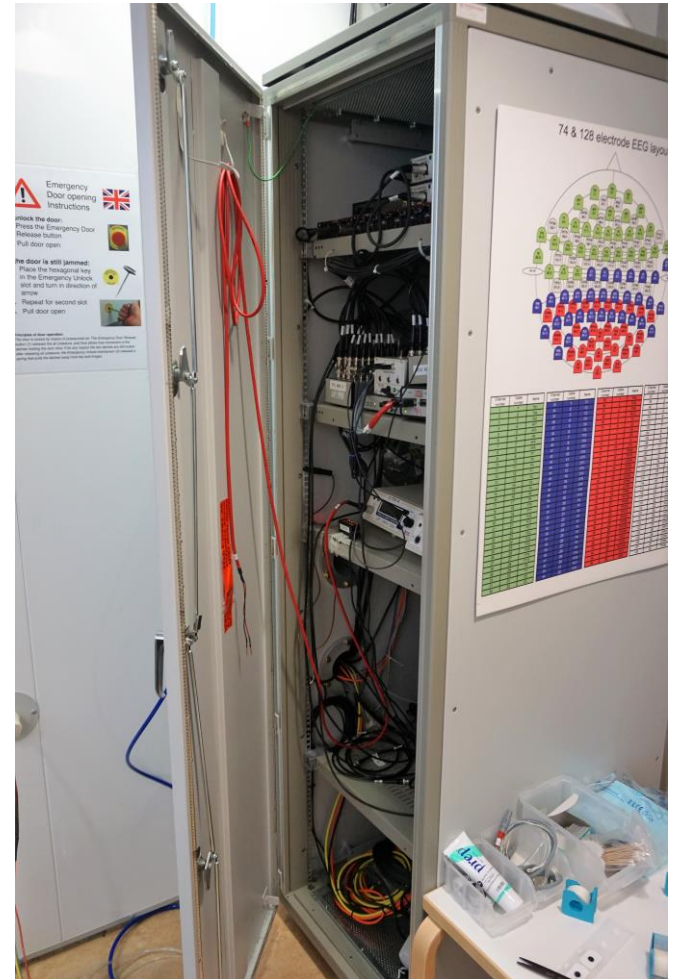
- Eye-tracker
- TTL triggers
- Sound stim.
- Sound amp.
- Remote control for projector



Finding your way in the lab

MSR cabinet

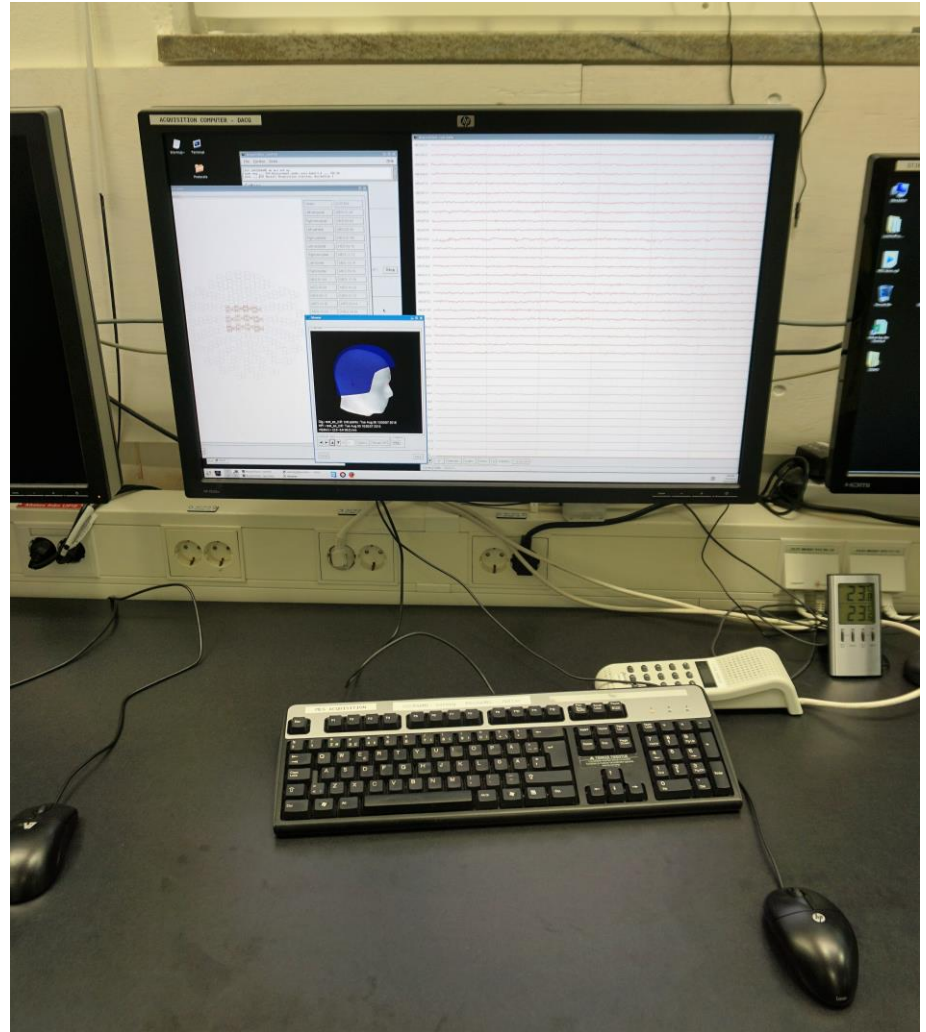
- Biopack
- Aux. Channels
- Back-panel speakers
- Misc. Channels
- Air pressure device



Finding your way in the lab

Acquisition computer

- Recording MEG



Finding your way in the lab

Stimulation computer

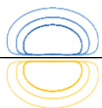
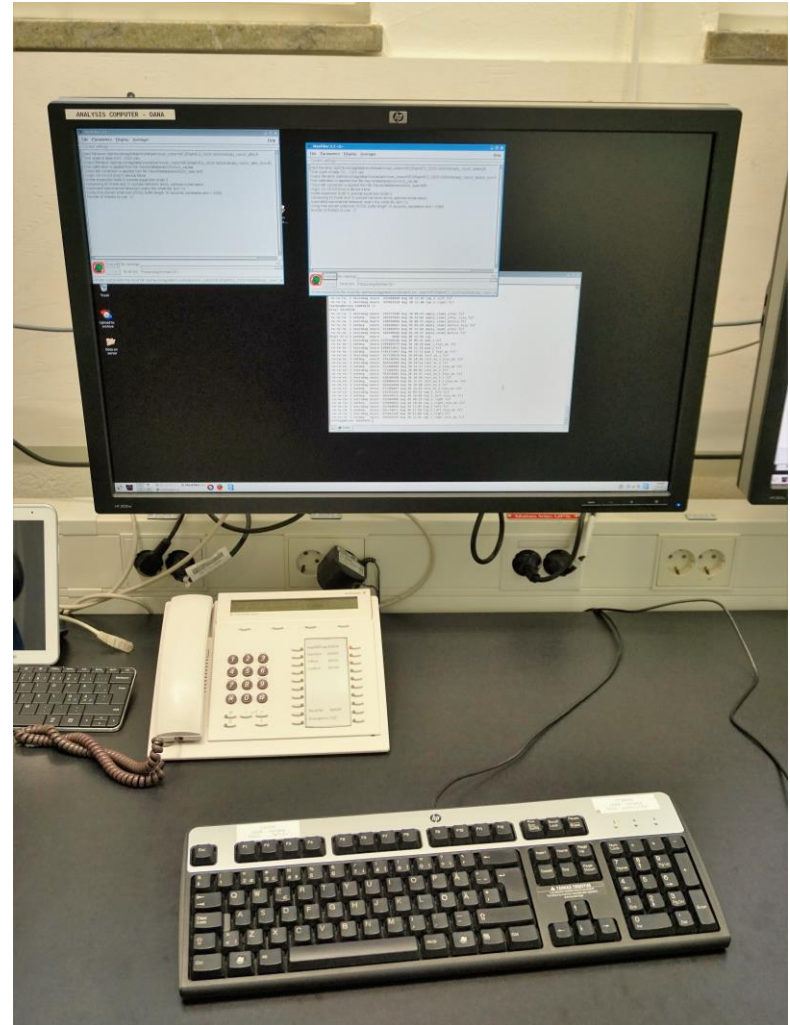
- Running paradigms (Presentation, Matlab, etc.)
- Presenting stimuli
- Eye-tracker
- Brain-computer interface



Finding your way in the lab

Analysis computer

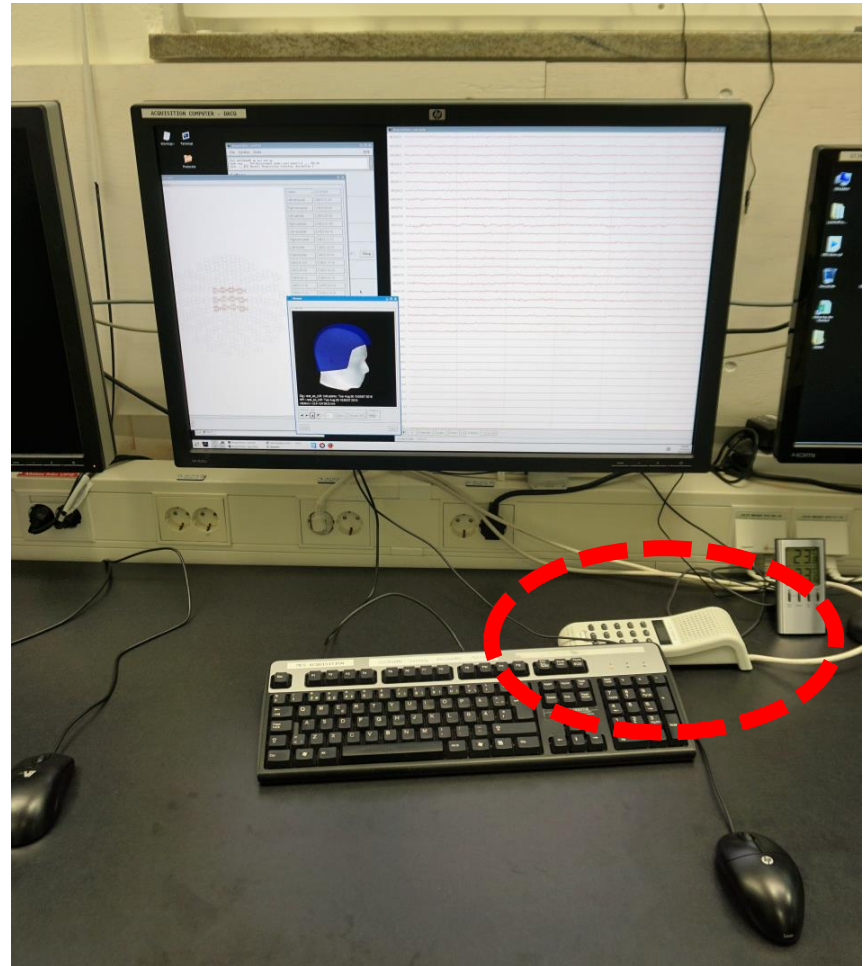
- Running MaxFilter
- Data transfer
- *Not for actual data analysis*



Finding your way in the lab

Intercom

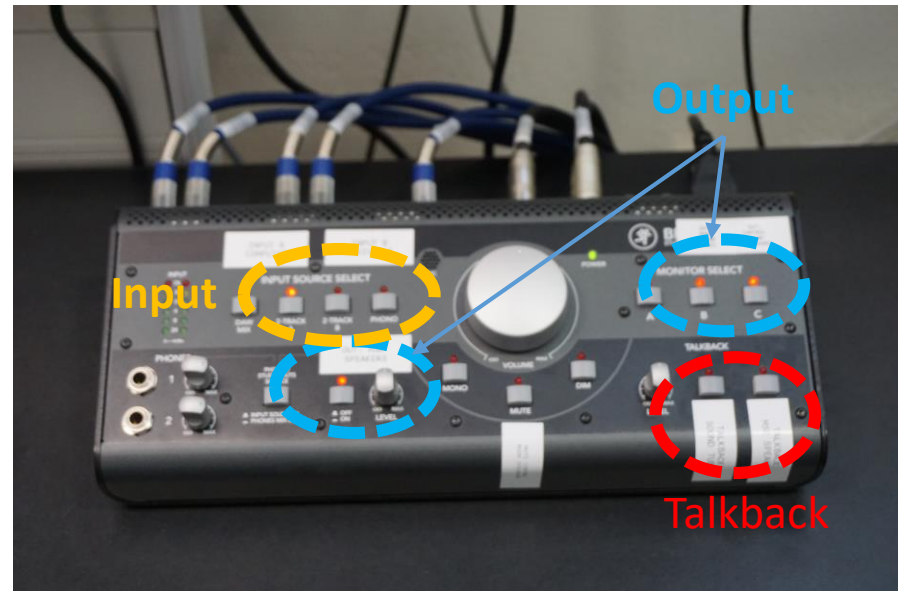
- Press **11**
- Hold down **T** to speak
- Hold **T** for 5 sec to turn off two-way communication
- Press **X** to turn off



Finding your way in the lab

Sound mixer/intercom

- Control sound input/output
- Speak with participant



Finding your way in the lab

MSR camera

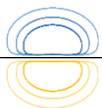
- Monitor subject inside MSR



Test everything works!

Before participant arrives:

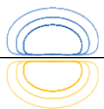
- Stimuli presentation
 - Visuals
 - Audio
 - Etc.
- Triggers
 - Stimulation PC -> Acquisition
 - Responses -> Acquisition
 - XXXX -> YYYY



Module:

Preparing the lab II

- Recording MEG



Quick-Checklist

Before participant arrives

- Load project and settings
- Check sensors

When participant arrives

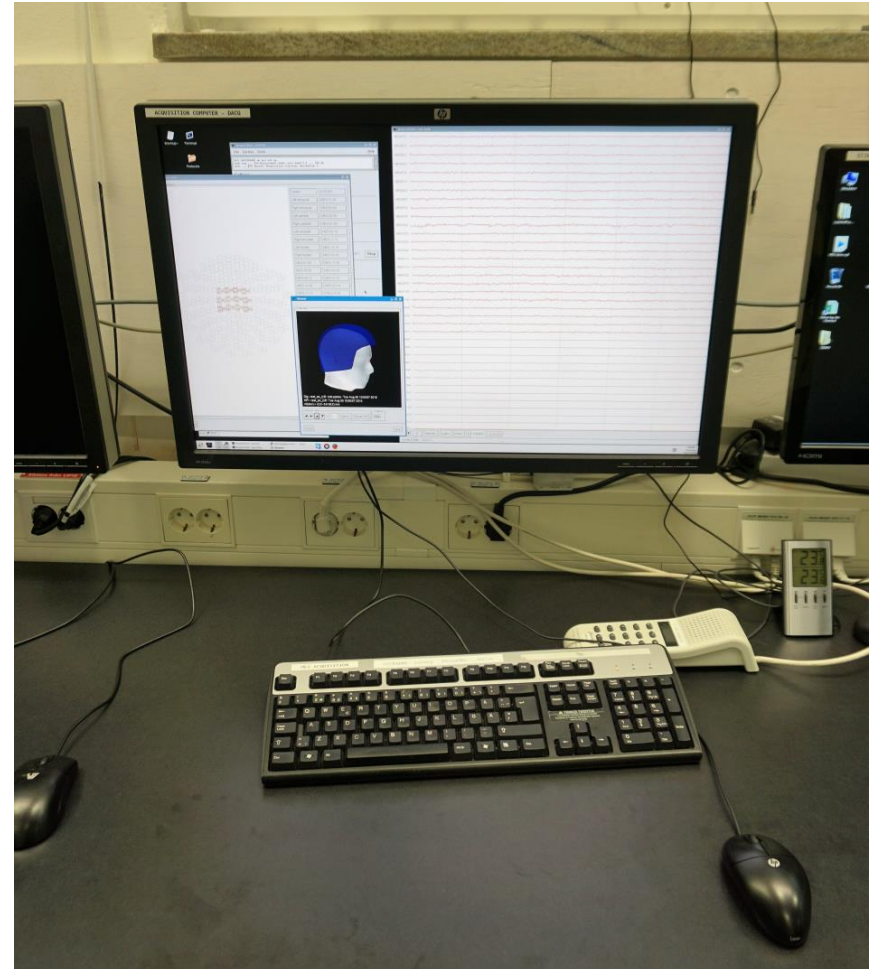
- Enter participant to database
- (Empty room recording)



Prepare for recording...

Acquisition computer

- Open Menu ->
Neuromag -> Acquisition



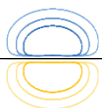
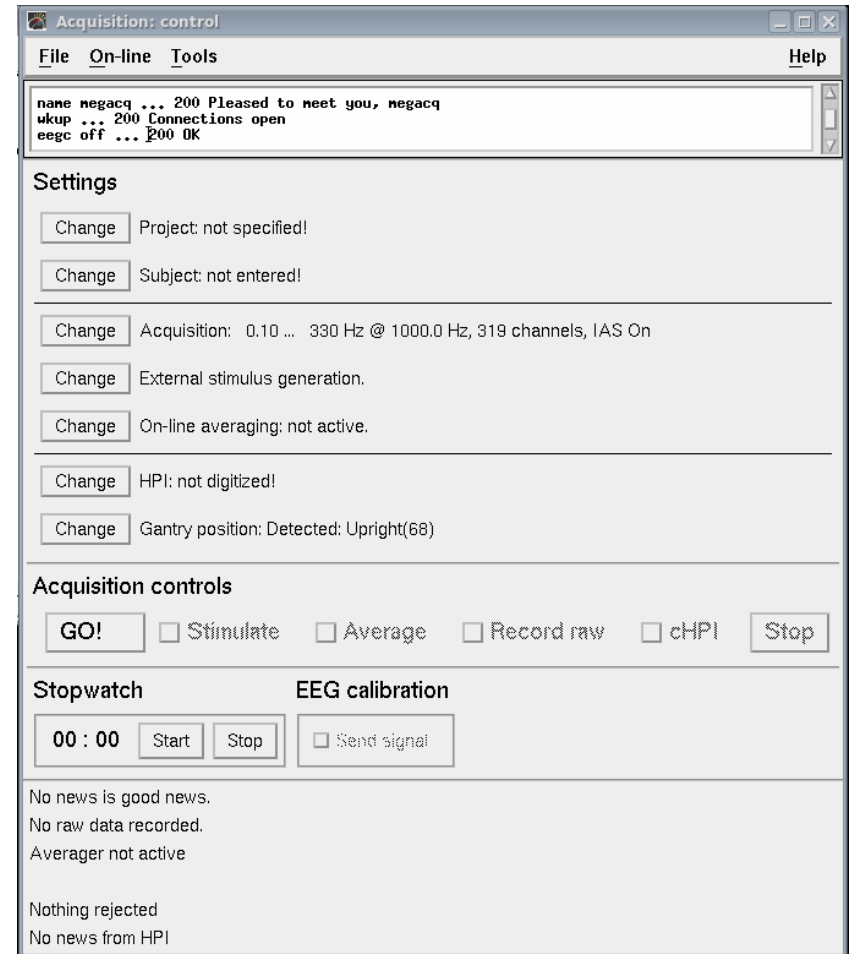
Acquisition software

Before participants arrive

- Select project
- Load settings
- Test triggers
- Inspect channels

When participant has arrived

- Enter participant in system
 - NB! Must be under "patients" even if healthy subject.
- (Run empty room recording)



Acquisition software

Select project

Enter/Change participant

Change settings

Acquisition: control

File On-line Tools Help

name negacq ... 200 Pleased to meet you, negacq
wkup ... 200 Connections open
eegc off ... 200 OK

Settings

Change Project: not specified!

Change Subject: not entered!

Change Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 319 channels, IAS On

Change External stimulus generation.

Change On-line averaging: not active.

Change HPI: not digitized!

Change Gantry position: Detected: Upright(68)

Acquisition controls

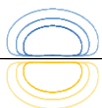
GO! Stimulate Average Record raw cHPI Stop

Stopwatch **EEG calibration**

00 : 00 Start Stop Send signal

No news is good news.
No raw data recorded.
Averager not active

Nothing rejected
No news from HPI



Acquisition software

Select project

Enter/Change participant

Change settings

Acquisition: control

File On-line Tools Help

name negacq ... 200 Pleased to meet you, negacq
wkup ... 200 Connections open
eegc off ... 200 OK

Settings

Change Project: not specified!

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Acquisition controls

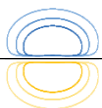
GO! Stimulate Average Record raw cHPI Stop

Stopwatch **EEG calibration**

00 : 00 Start Stop Send signal

No news is good news.
No raw data recorded.
Averager not active

Nothing rejected
No news from HPI



Acquisition software

Settings: Select what to record

How to acquire?

Channel selection :

BIO001	BIO002	BIO003	BIO004	BIO005	BIO006	BIO007	BIO008	BIO009	BIO010	BIO011	BIO012	EEG001	EEG002	EEG003	EEG004	EEG005	EEG006	EEG007	EEG008	EEG009	EEG010	EEG011	EEG012
EEG013	EEG014	EEG015	EEG016	EEG017	EEG018	EEG019	EEG020	EEG021	EEG022	EEG023	EEG024	EEG025	EEG026	EEG027	EEG028	EEG029	EEG030	EEG031	EEG032	EEG033	EEG034	EEG035	EEG036
EEG037	EEG038	EEG039	EEG040	EEG041	EEG042	EEG043	EEG044	EEG045	EEG046	EEG047	EEG048	EEG049	EEG050	EEG051	EEG052	EEG053	EEG054	EEG055	EEG056	EEG057	EEG058	EEG059	EEG060
EEG061	EEG062	EEG063	EEG064	EEG065	EEG066	EEG067	EEG068	EEG069	EEG070	EEG071	EEG072	EEG073	EEG074	EEG075	EEG076	EEG077	EEG078	EEG079	EEG080	EEG081	EEG082	EEG083	EEG084
EEG085	EEG086	EEG087	EEG088	EEG089	EEG090	EEG091	EEG092	EEG093	EEG094	EEG095	EEG096	EEG097	EEG098	EEG099	EEG100	EEG101	EEG102	EEG103	EEG104	EEG105	EEG106	EEG107	EEG108
EEG109	EEG110	EEG111	EEG112	EEG113	EEG114	EEG115	EEG116	EEG117	EEG118	EEG119	EEG120	EEG121	EEG122	EEG123	EEG124	EEG125	EEG126	EEG127	EEG128	EXCI	IASX+	IASX-	IASY+
IASY-	IASZ+	IASZ-	IAS_DX	IAS_DY	IAS_X	IAS_Y	IAS_Z	MEG0111	MEG0112	MEG0113	MEG0121	MEG0122	MEG0123	MEG0131	MEG0132	MEG0133	MEG0141	MEG0142	MEG0143	MEG0211	MEG0212	MEG0213	MEG0221
MEG0222	MEG0223	MEG0231	MEG0232	MEG0233	MEG0241	MEG0242	MEG0243	MEG0311	MEG0312	MEG0313	MEG0321	MEG0322	MEG0323	MEG0331	MEG0332	MEG0333	MEG0341	MEG0342	MEG0343	MEG0411	MEG0412	MEG0413	MEG0421
MEG0422	MEG0423	MEG0431	MEG0432	MEG0433	MEG0441	MEG0442	MEG0443	MEG0511	MEG0512	MEG0513	MEG0521	MEG0522	MEG0523	MEG0531	MEG0532	MEG0533	MEG0541	MEG0542	MEG0543	MEG0611	MEG0612	MEG0613	MEG0621
MEG0622	MEG0623	MEG0631	MEG0632	MEG0633	MEG0641	MEG0642	MEG0643	MEG0711	MEG0712	MEG0713	MEG0721	MEG0722	MEG0723	MEG0731	MEG0732	MEG0733	MEG0741	MEG0742	MEG0743	MEG0811	MEG0812	MEG0813	MEG0821
MEG0822	MEG0823	MEG0911	MEG0912	MEG0913	MEG0921	MEG0922	MEG0923	MEG0931	MEG0932	MEG0933	MEG0941	MEG0942	MEG0943	MEG1011	MEG1012	MEG1013	MEG1021	MEG1022	MEG1023	MEG1031	MEG1032	MEG1033	MEG1041
MEG1042	MEG1043	MEG1111	MEG1112	MEG1113	MEG1121	MEG1122	MEG1123	MEG1131	MEG1132	MEG1133	MEG1141	MEG1142	MEG1143	MEG1211	MEG1212	MEG1213	MEG1221	MEG1222	MEG1223	MEG1231	MEG1232	MEG1233	MEG1241
MEG1242	MEG1243	MEG1311	MEG1312	MEG1313	MEG1321	MEG1322	MEG1323	MEG1331	MEG1332	MEG1333	MEG1341	MEG1342	MEG1343	MEG1411	MEG1412	MEG1413	MEG1421	MEG1422	MEG1423	MEG1431	MEG1432	MEG1433	MEG1441
MEG1442	MEG1443	MEG1511	MEG1512	MEG1513	MEG1521	MEG1522	MEG1523	MEG1531	MEG1532	MEG1533	MEG1541	MEG1542	MEG1543	MEG1611	MEG1612	MEG1613	MEG1621	MEG1622	MEG1623	MEG1631	MEG1632	MEG1633	MEG1641
MEG1642	MEG1643	MEG1711	MEG1712	MEG1713	MEG1721	MEG1722	MEG1723	MEG1731	MEG1732	MEG1733	MEG1741	MEG1742	MEG1743	MEG1811	MEG1812	MEG1813	MEG1821	MEG1822	MEG1823	MEG1831	MEG1832	MEG1833	MEG1841
MEG1842	MEG1843	MEG1911	MEG1912	MEG1913	MEG1921	MEG1922	MEG1923	MEG1931	MEG1932	MEG1933	MEG1941	MEG1942	MEG1943	MEG2011	MEG2012	MEG2013	MEG2021	MEG2022	MEG2023	MEG2031	MEG2032	MEG2033	MEG2041
MEG2042	MEG2043	MEG2111	MEG2112	MEG2113	MEG2121	MEG2122	MEG2123	MEG2131	MEG2132	MEG2133	MEG2141	MEG2142	MEG2143	MEG2211	MEG2212	MEG2213	MEG2221	MEG2222	MEG2223	MEG2231	MEG2232	MEG2233	MEG2241
MEG2242	MEG2243	MEG2311	MEG2312	MEG2313	MEG2321	MEG2322	MEG2323	MEG2331	MEG2332	MEG2333	MEG2341	MEG2342	MEG2343	MEG2411	MEG2412	MEG2413	MEG2421	MEG2422	MEG2423	MEG2431	MEG2432	MEG2433	MEG2441
MEG2442	MEG2443	MEG2511	MEG2512	MEG2513	MEG2521	MEG2522	MEG2523	MEG2531	MEG2532	MEG2533	MEG2541	MEG2542	MEG2543	MEG2611	MEG2612	MEG2613	MEG2621	MEG2622	MEG2623	MEG2631	MEG2632	MEG2633	MEG2641
MEG2642	MEG2643	MISC001	MISC002	MISC003	MISC004	MISC005	MISC006	MISC007	MISC008	MISC009	MISC010	MISC011	MISC012	MISC013	MISC014	MISC015	MISC016	MISC017	MISC018	MISC019	MISC020	MISC021	MISC022
MISC023	MISC024	STI001	STI002	STI003	STI004	STI005	STI006	STI007	STI008	STI009	STI010	STI011	STI012	STI013	STI014	STI015	STI016	STI101	STI102	SYS101	SYS201		

Number of channels = 319

Commands :

MEG ON | MEG OFF | EEG ON | EEG OFF | BIO ON | BIO OFF | **Edit BIO**

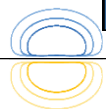
Sampling freq. (Hz) : 1000 | Lowpass freq. (Hz) : 330 | Raw data baseline (s) : 0.0 | EEG/BIO Active ground

MEG highpass (Hz) : 0.1 | EEG highpass (Hz) : 0.1 | EEG gain : 2000 | Internal Active Shielding

OK | Cancel | Help

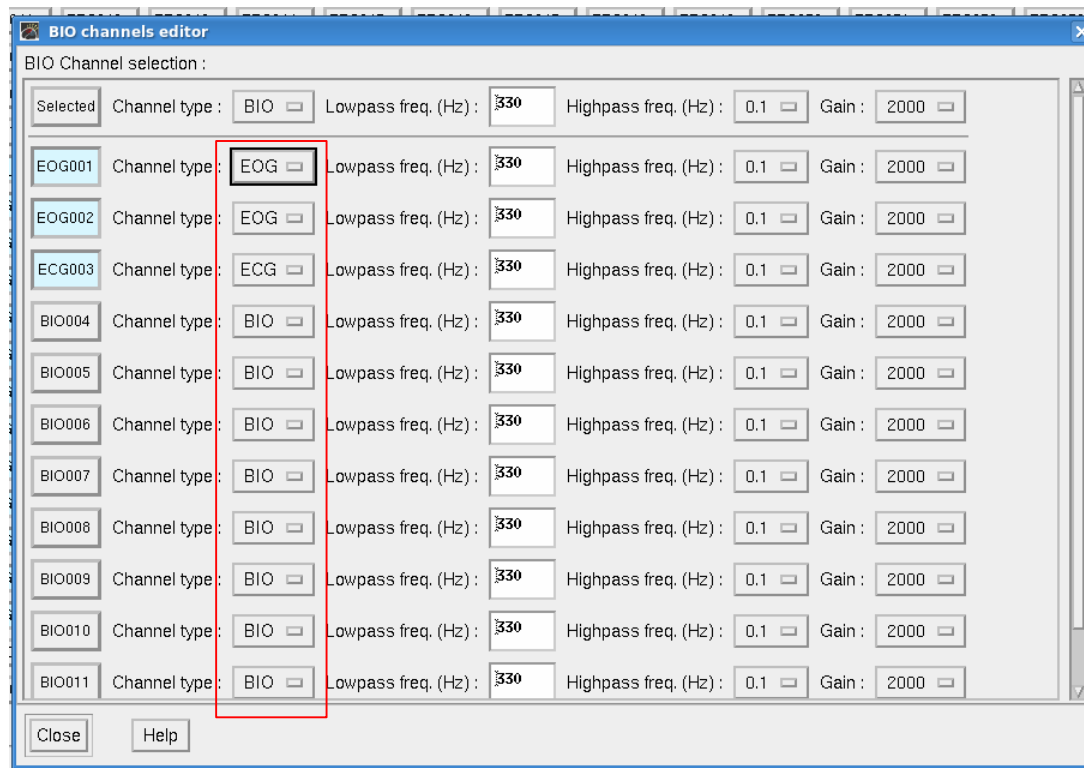
EOG/ECG/
EMG

Triggers



Acquisition software

Settings



Select what "BIO" channels to record



Acquisition software

Select project

Enter/Change participant

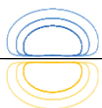
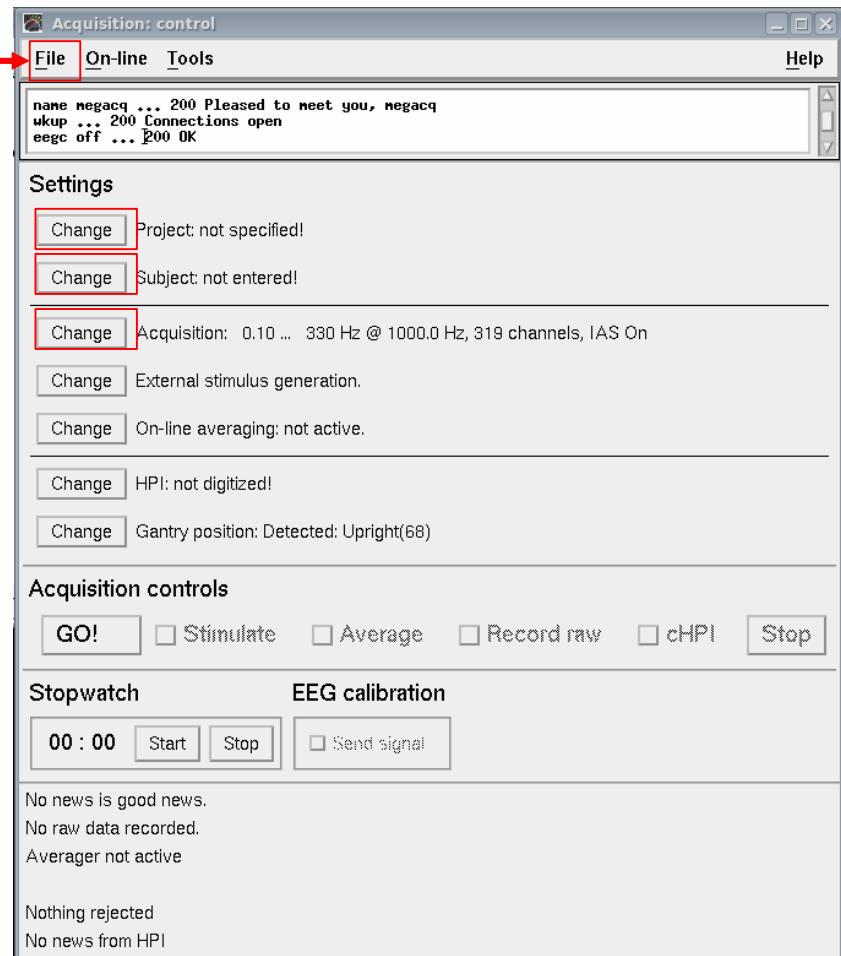
Change settings

Save settings for future use:

File -> save settings

Load saved settings:

File -> load settings



Acquisition software

Select project

Enter/Change participant

Change settings

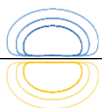
The screenshot shows the 'Acquisition: control' software window. It has a menu bar with 'File', 'On-line', 'Tools', and 'Help'. Below the menu bar is a text area containing the following text:
name negacq ... 200 Pleased to meet you, negacq
wkup ... 200 Connections open
eegc off ... 200 OK

The main area is divided into several sections:

- Settings:** This section contains several rows, each with a 'Change' button and a status message:
 - 'Change' Project: not specified!
 - 'Change' Subject: not entered!
 - 'Change' Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 319 channels, IAS On
 - 'Change' External stimulus generation.
 - 'Change' On-line averaging: not active.
 - 'Change' HPI: not digitized!
 - 'Change' Gantry position: Detected: Upright(68)
- Acquisition controls:** This section contains a 'GO!' button, several checkboxes for 'Stimulate', 'Average', 'Record raw', and 'cHPI', and a 'Stop' button.
- Stopwatch:** This section contains a digital display showing '00 : 00', 'Start', and 'Stop' buttons.
- EEG calibration:** This section contains a checkbox for 'Send signal'.

At the bottom of the window, there is a status area with the following text:
No news is good news.
No raw data recorded.
Averager not active
Nothing rejected
No news from HPI

Red arrows from the text on the left point to the 'Change' buttons in the 'Settings' section: one to the 'Change' button for 'Project: not specified!', one to the 'Change' button for 'Subject: not entered!', and one to the 'Change' button for 'Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 319 channels, IAS On'.



Acquisition software

Select a Subject

Always add under “Patients”

List of participants: Pick if participant previously has been at NatMEG

Enter participant name

Enter participant Date of birth

Additional info.

Database id (NB!)

Select a subject

Available subjects :

Subject type : Patients

Accessible to group : None

Test Test
Test Test
Testsson Test
Test Test
The Doll

Subject name :

Last : Testsson

First : Test

Middle :

Date of birth :

day 1 month 1 year 1900

Subject dimensions :

Height (cm) 175 Weight (kg) 75

Other information :

Sex : Male

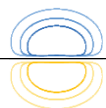
ID # : 0156

Handedness : Right

HIS ID :

Comments :

Ok Cancel Help



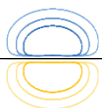
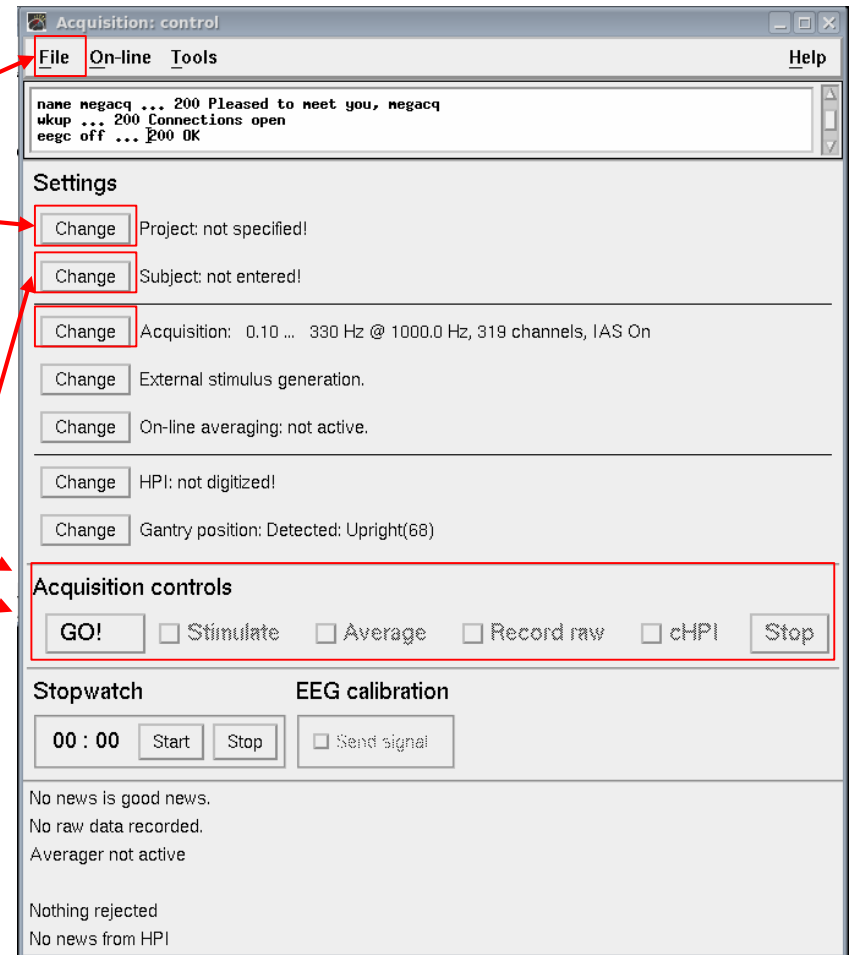
Acquisition software

Before participant arrive

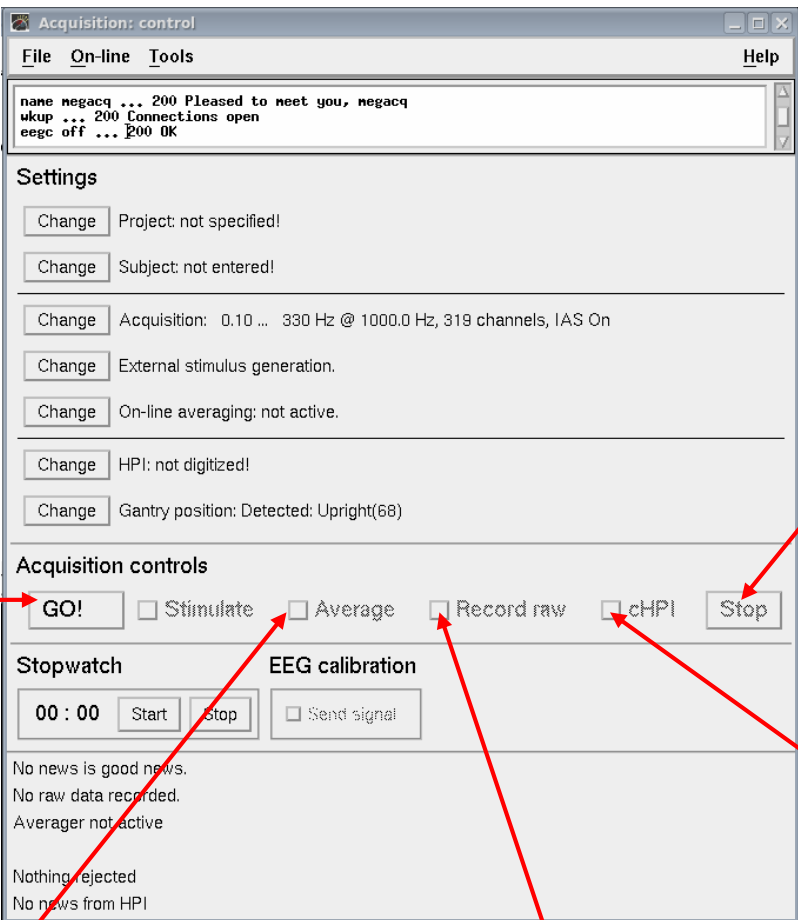
- Select project
- Load settings
- Test triggers
- Inspect channels

When participant has arrived

- Enter participant in system
 - NB! Must be under "patients" even if healthy subject.
- (Run empty room recording)



Acquisition software



The screenshot shows the 'Acquisition: control' software interface. It features a menu bar with 'File', 'On-line', 'Tools', and 'Help'. A status window at the top displays system messages: 'name negacq ... 200 Pleased to meet you, negacq', 'wkup ... 200 Connections open', and 'eegc off ... 200 OK'. Below this is a 'Settings' section with several 'Change' buttons and their corresponding values: 'Project: not specified!', 'Subject: not entered!', 'Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 319 channels, IAS On', 'External stimulus generation.', 'On-line averaging: not active.', 'HPI: not digitized!', and 'Gantry position: Detected: Upright(68)'. The 'Acquisition controls' section contains a 'GO!' button, checkboxes for 'Stimulate', 'Average', 'Record raw', and 'cHPI', and a 'Stop' button. A 'Stopwatch' section shows a timer at '00 : 00' with 'Start' and 'Stop' buttons, and an 'EEG calibration' section with a 'Send signal' checkbox. A status area at the bottom provides feedback: 'No news is good news.', 'No raw data recorded.', 'Averager not active', 'Nothing rejected', and 'No news from HPI'. Red arrows point from external text to specific controls: 'Start/restart' points to the 'GO!' button; 'Plot/record averages' points to the 'Average' checkbox; 'Record MEG data' points to the 'Record raw' checkbox; 'Record continuous HPI' points to the 'cHPI' checkbox; and 'Stop' points to the 'Stop' button.

Start/restart → GO!

Plot/record averages → Average

Record MEG data → Record raw

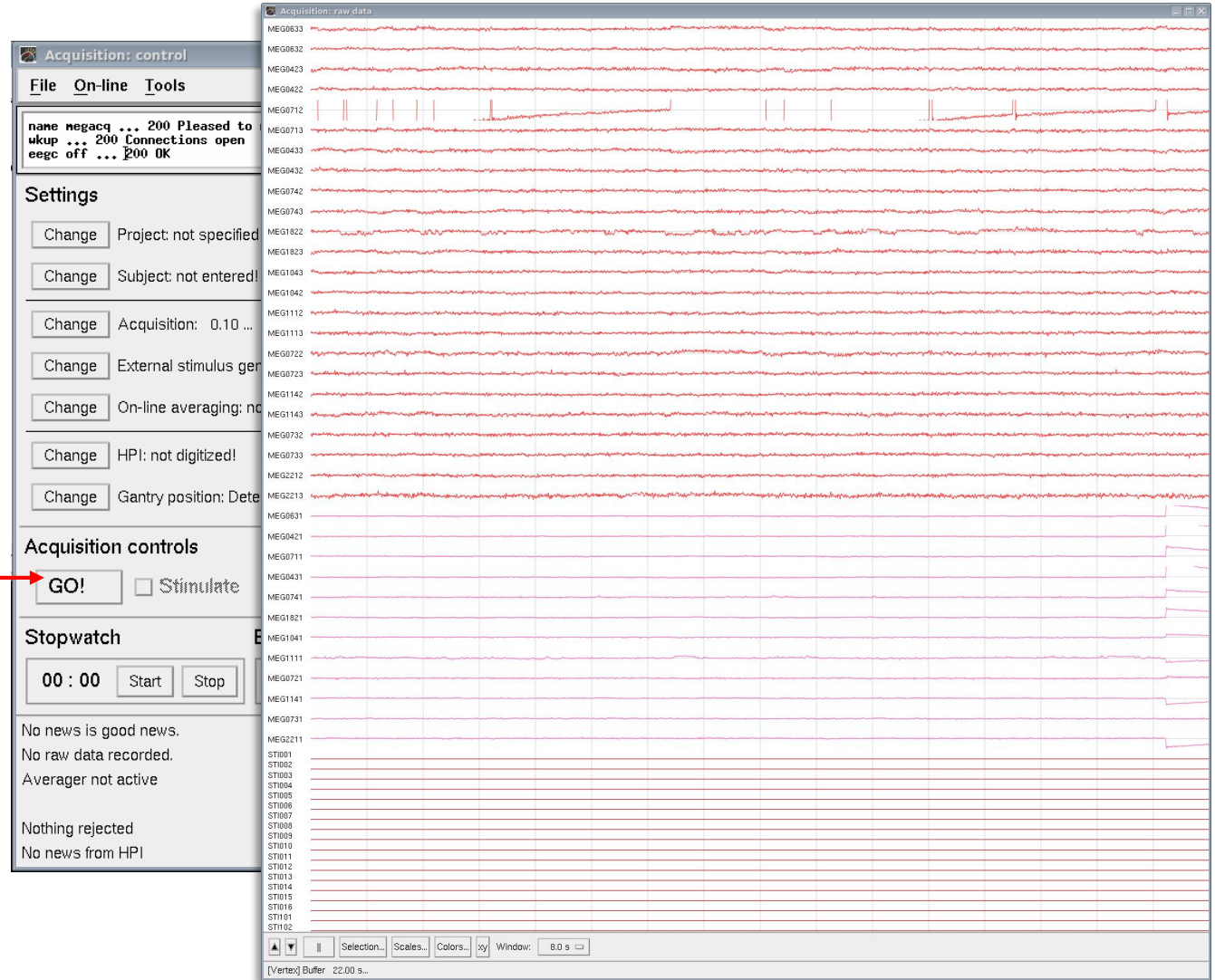
Record continuous HPI → cHPI

Stop → Stop



Acquisition software

Start/restart



Acquisition software

The screenshot displays the acquisition software interface. At the top, there is a menu bar with 'File', 'On-line', and 'Tools'. Below it, a window titled 'Acquisition: control' shows a list of channels: STI009, STI010, STI011, STI012, STI013, STI014, STI015, STI016, STI101, and STI102. A large window titled 'Acquisition: raw data' shows a grid of red waveforms for channels MEG0633, MEG0632, MEG0423, MEG0422, and MEG0712. A central window titled 'Visualization options' is highlighted with a black border. It contains a list of channels on the left, a grid of red waveforms, and a control panel at the bottom with buttons for 'Selection...', 'Scales...', 'Colors...', 'xy', and a 'Window: 8.0 s' dropdown. A status bar at the bottom of this window reads '[Vertex] Buffer 22.00 s...'. A red arrow points from the text 'Start/restart' to the 'Start' button in the 'Stopwatch' section. The 'Stopwatch' section includes a digital display showing '00 : 00' and 'Start' and 'Stop' buttons. Below the stopwatch, there is a text area with the following status messages: 'No news is good news.', 'No raw data recorded.', 'Averager not active', 'Nothing rejected', and 'No news from HPI'. At the bottom of the interface, there is another window showing a list of channels from MEG0741 to STI102 and a control panel similar to the one in the 'Visualization options' window.

Start/restart

Visualization options

Stopwatch

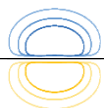
00 : 00

Start

Stop

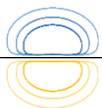
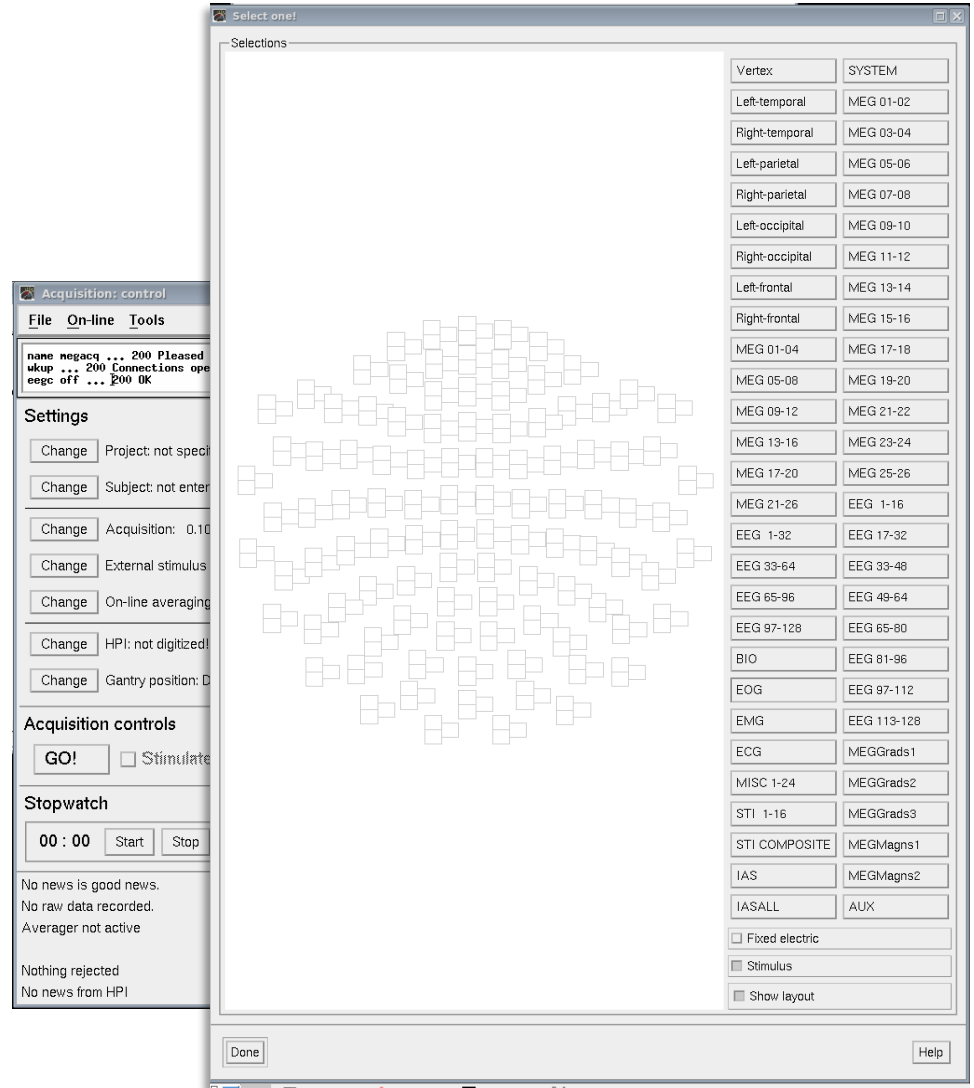
No news is good news.
No raw data recorded.
Averager not active

Nothing rejected
No news from HPI



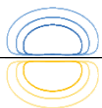
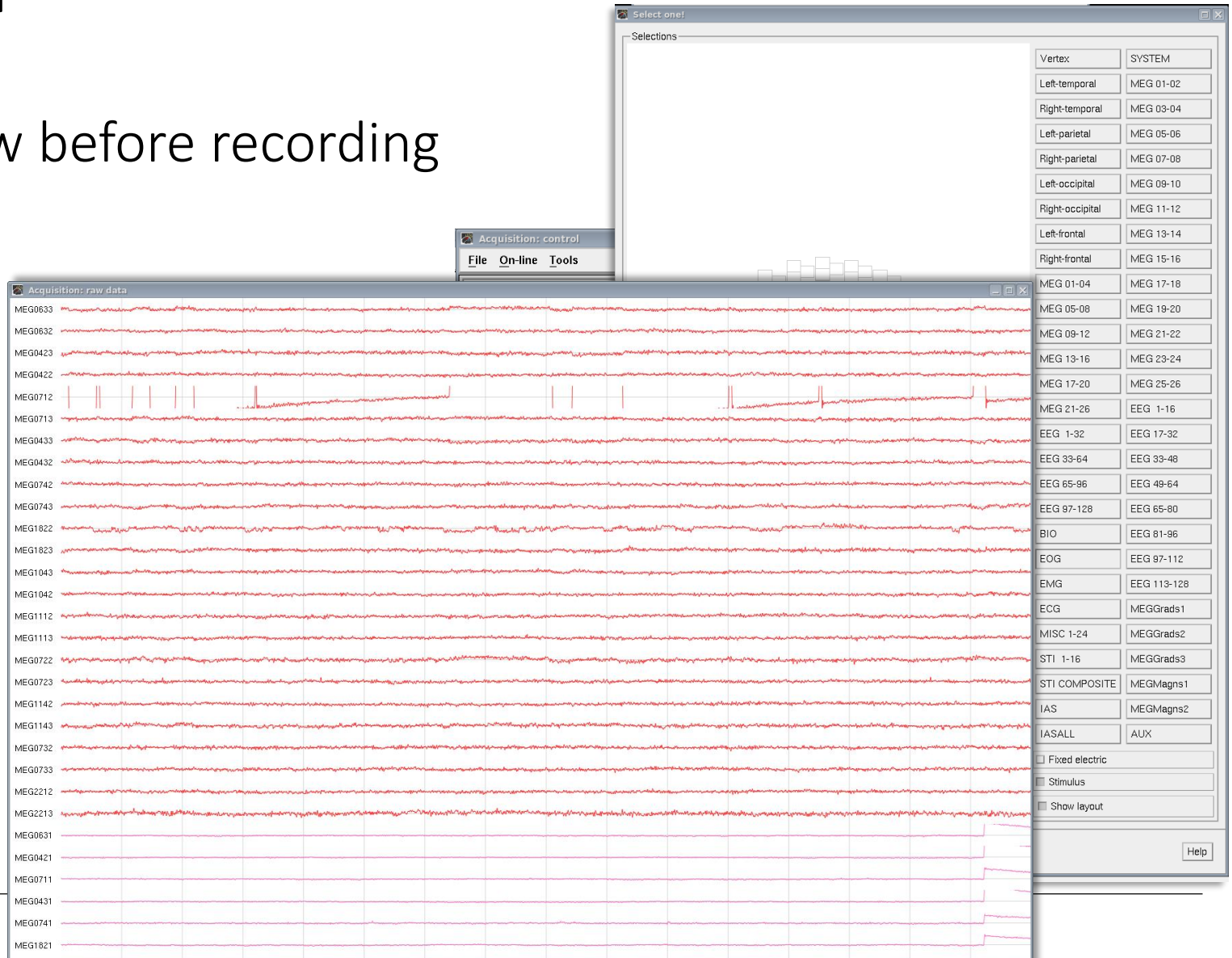
Acquisition software

- Select what to view



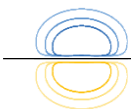
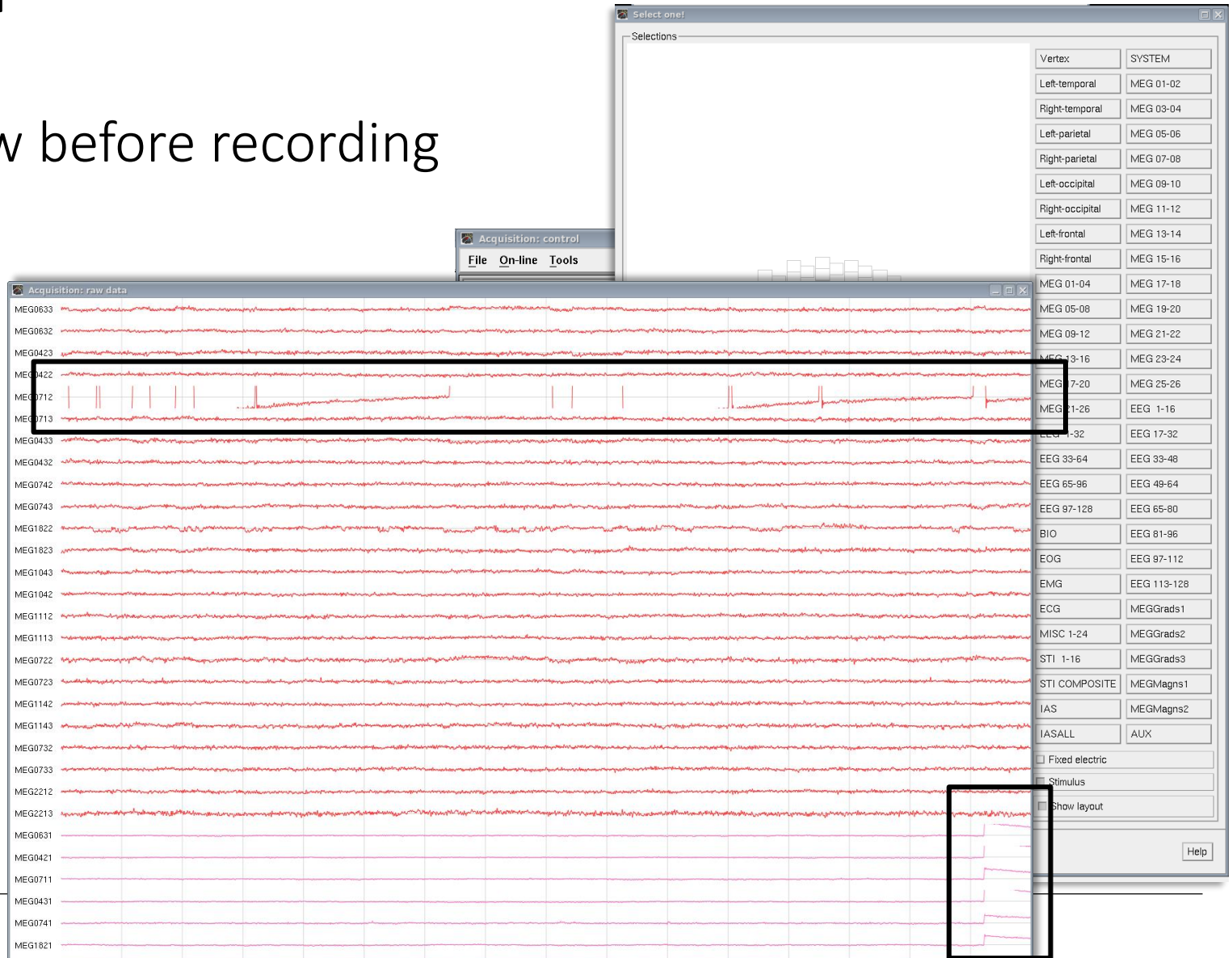
Acquisition software

- View before recording



Acquisition software

- View before recording

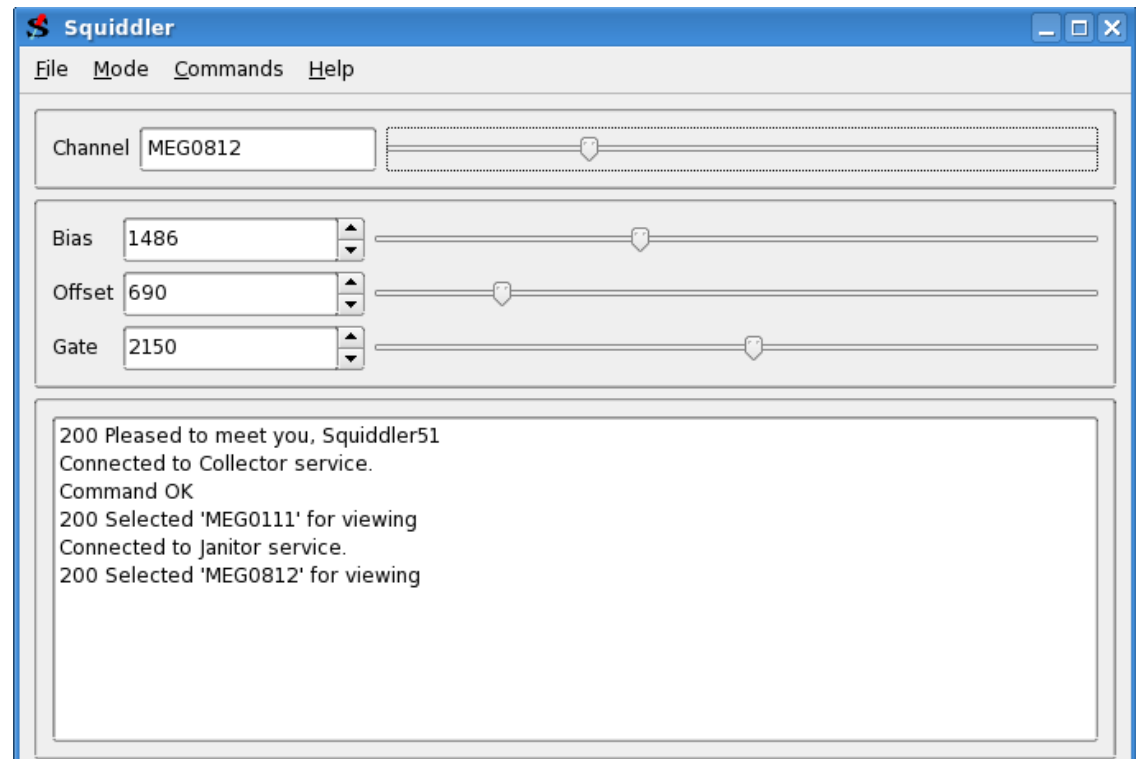


Bad channels

Open Menu > Neuromag > squiddler

Squiddler

- Heat
- Reset
- (repeat)



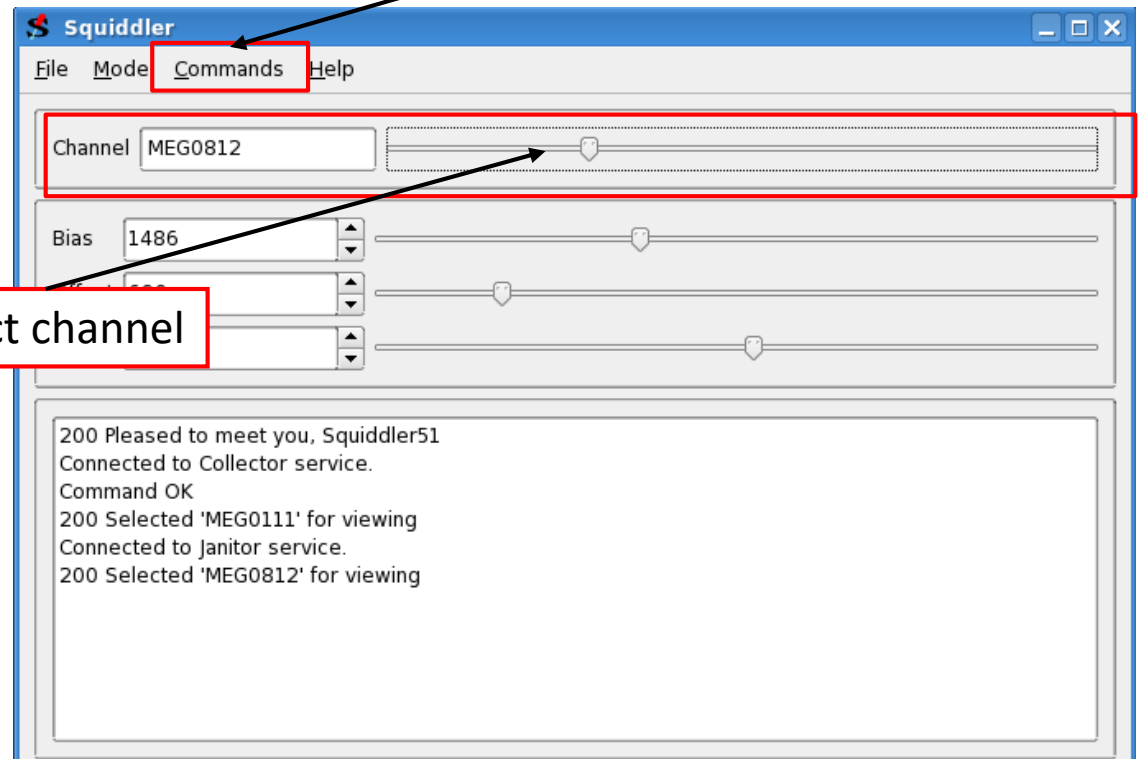
Bad channels

Open Menu > Neuromag > squiddler

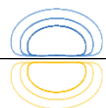
Heat/reset

Squiddler

- Heat
- Reset
- (repeat)



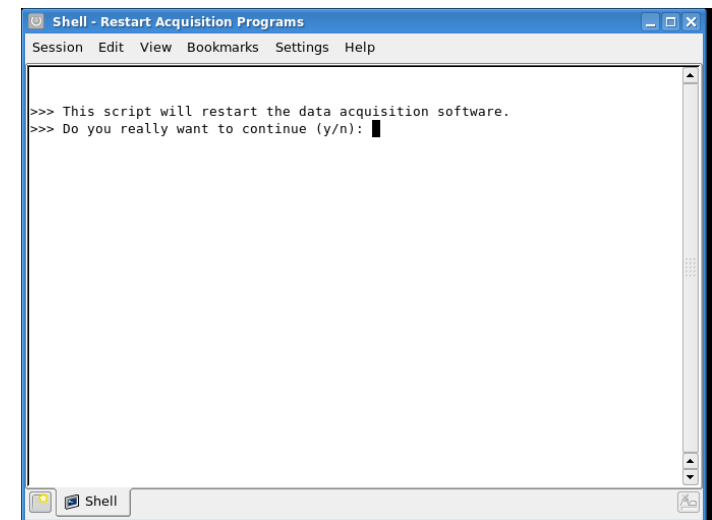
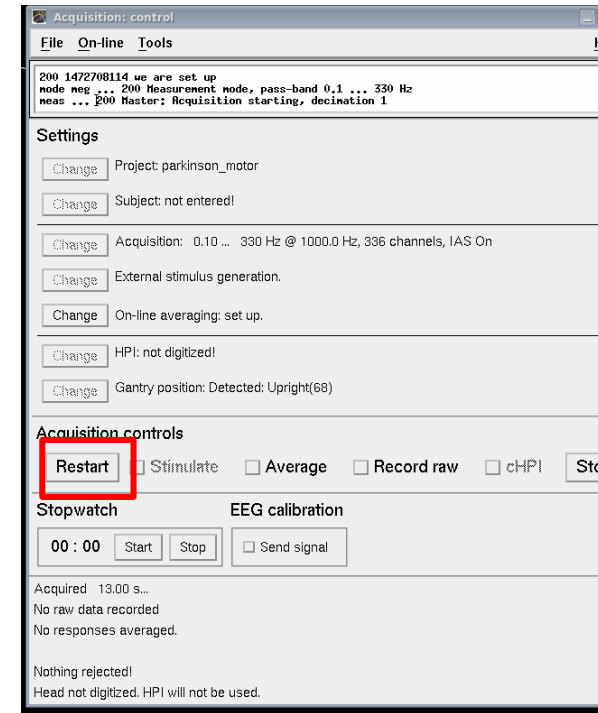
Select channel



Acquisition not working?

What to do?

- 1) Check all settings are correct
 - Click *Restart*
- 2) Close/open Acquisition
- 3) Restart Acquisition
 - Menu -> Neruomag -> Restart Acquisition -> Type: "y"
 - Wait for restart
- 4) Call NatMEG personel



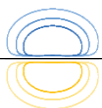
Module: Running a MEG experiment



Quick-Checklist: Prep. participant

- Inform participant
- Complete checklist. Ask about metal items.
- Collect consent form
- Show to changing area and find clothes

Be prepared to answer any questions participant might have.



Control questions

Example:

Kontroll frågor

Lider du av klaustrofobi? Ja___ Nej___

Lider du av epilepsi Ja___ Nej___

Har du metallföremål inuti din kropp (tex pacemaker, skruvar eller proteser)? Ja___ Nej___

Har du metallföremål inuti ditt huvud (tex tandställning eller elektroder)? Ja___ Nej___

Har Du fått metallsplitter i ögonen eller annan del av kroppen? Ja___ Nej___

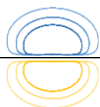
Har du någon form av kroppssmyckning som inta kan tas bort? Ja___ Nej___

Är Du gravid? Ja___ Nej___

Högerhänt____ Vänsterhänt____

Datum

Namn



Preparing for measurement

Preparation area:

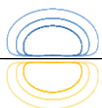
- Attach EOG, ECG, EMG, etc. electrodes
- Attach HPI coils
- Digitalize head

Inside MSR:

- Place participant in MEG
- Connect EOG, ECG, EMG, etc. and HPI

Control area:

- Check stimulation equipment
- Test signals and check channels



When subject is in place

- Start/restart
- Assess HPI fit
- Inspect MEG
- Inspect EOG
- Inspect ECG
- *Inspect ...*
- Start recording

The screenshot displays the 'Acquisition: control' software interface. The 'Restart' button in the 'Acquisition controls' section is highlighted with a red box. The interface shows various settings for MEG acquisition, including project name, subject name, acquisition parameters, and a list of MEG channels on the right.

Acquisition: control

File On-line Tools Help

200 1472708114 we are set up
mode meg ... 200 Measurement mode, pass-band 0.1 ... 330 Hz
neas ... 200 Master: Acquisition starting, declination 1

Settings

Change Project: parkinson_motor

Change Subject: not entered!

Change Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 336 channels, IAS On

Change External stimulus generation.

Change On-line averaging: set up.

Change HPI: not digitized!

Change Gantry position: Detected: Upright(68)

Acquisition controls

Restart Stimulate Average Record raw cHPI **Stop**

Stopwatch **EEG calibration**

00 : 00 **Start** **Stop** Send signal

Acquired 13.00 s...
No raw data recorded
No responses averaged.

Nothing rejected!
Head not digitized. HPI will not be used.

Select one!

Selections

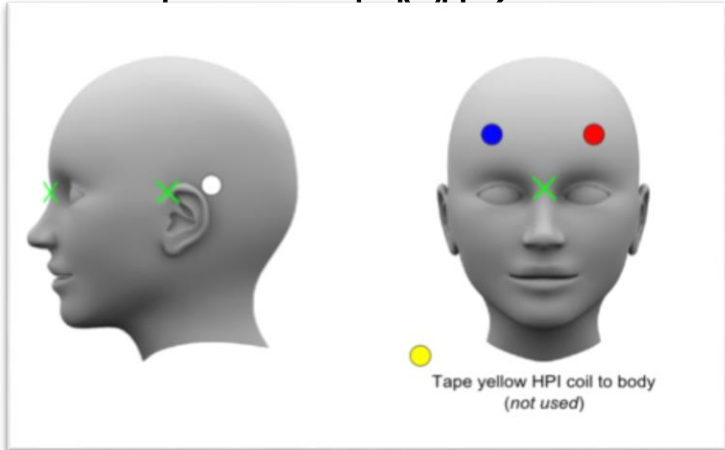
Vertex	SYSTEM
Left-temporal	MEG 01-02
Right-temporal	MEG 03-04
Left-parietal	MEG 05-06
Right-parietal	MEG 07-08
Left-occipital	MEG 09-10
Right-occipital	MEG 11-12
Left-frontal	MEG 13-14
Right-frontal	MEG 15-16
MEG 01-04	MEG 17-18
MEG 05-08	MEG 19-20
MEG 09-12	MEG 21-22
MEG 13-16	MEG 23-24
MEG 17-20	MEG 25-26
MEG 21-26	EEG 1-16
EEG 1-32	EEG 17-32
EEG 33-64	EEG 33-48
EEG 65-96	EEG 49-64
EEG 97-128	EEG 65-80
BIO	EEG 81-96
EOG	EEG 97-112
EMG	EEG 113-128
ECG	MEGGrads1
MISC 1-24	MEGGrads2
STI 1-16	MEGGrads3
STI COMPOSITE	MEGMagns1
IAS	MEGMagns2
IASALL	AUX
<input type="checkbox"/> Fixed electric	
<input type="checkbox"/> Stimulus	
<input type="checkbox"/> Show layout	

Done Help



When subject is in place

- Start/restart
- Assess HPI fit



Start recording

Acquisition window showing HPI fitting results and a dialog box for accepting the fit.

HPI results

hpfitt (pid = 22004) exited with code 0: Successful fit

HPI fitting results:

Coil 1:	(-25.0, 87.1, 34.2) [device]	mm, g = 99.88%	OK
Coil 2:	(-78.4, -16.5, -27.2) [device]	mm, g = 99.71%	OK
Coil 3:	(48.8, 82.6, 33.9) [device]	mm, g = 99.40%	OK
Coil 4:	(70.3, -39.6, -38.0) [device]	mm, g = 99.73%	OK

Selected coils:

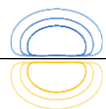
Pair:	1-2	1-3	1-4	2-3	2-4	3-4
Isotrak:	131.8	71.4	174.0	171.1	151.8	143.9 mm
Fitted:	131.7	73.9	174.2	172.4	150.8	143.4 mm
Diff:	0.0	-2.6	-0.1	-1.3	1.0	0.5 mm

Head origin: (-2.2, -0.7, -29.0) mm [device]

Suggestion: Accept

Buttons: Accept, Try again, Omit HPI, Help

Acquisition status: Acquired 13.00 s... No raw data recorded. No responses averaged. Nothing rejected! Head not digitized. HPI will not be used.

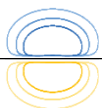


When subject is in place

- Start/restart
- **Assess HPI fit**
- Inspect MEG
- Inspect EOG
- Inspect ECG
- *Inspect ...*
- Start recording

What if HPI fit is bad?

- Check HPI set is connected
- Make sure the correct preparation is loaded
- Make sure participants head is inside helmet
- Check for loose coils
- Redo HPI/isotrak fit: Get participant out and do everything over 😞



When subject is in place

- Start/restart
- Assess HPI fit
- Inspect MEG
- Inspect EOG
- Inspect ECG
- *Inspect ...*
- **Start recording**
 - Record
 - Record online avg.
 - Record head pos.

Acquisition: control

File On-line Tools Help

200 1472708114 we are set up
mode meg ... 200 Measurement mode, pass-band 0.1 ... 330 Hz
meas ... 200 Master: Acquisition starting, decimation 1

Settings

Project: parkinson_motor

Subject: not entered!

Acquisition: 0.10 ... 330 Hz @ 1000.0 Hz, 336 channels, IAS On

External stimulus generation.

On-line averaging: set up.

HPI: not digitized!

Gantry position: Detected: Upright(68)

Acquisition controls

Stimulate Average Record raw cHPI

Stopwatch **EEG calibration** Send signal

Acquired 13.00 s...
No raw data recorded
No responses averaged.

Nothing rejected!
Head not digitized. HPI will not be used.

Done Help

Vertex	SYSTEM
Left-temporal	MEG 01-02
Right-temporal	MEG 03-04
Left-parietal	MEG 05-06
Right-parietal	MEG 07-08
Left-occipital	MEG 09-10
Right-occipital	MEG 11-12
Left-frontal	MEG 13-14
Right-frontal	MEG 15-16
MEG 01-04	MEG 17-18
MEG 05-08	MEG 19-20
MEG 09-12	MEG 21-22
MEG 13-16	MEG 23-24
MEG 17-20	MEG 25-26
MEG 21-26	EEG 1-16
EEG 1-32	EEG 17-32
EEG 33-64	EEG 33-48
EEG 65-96	EEG 49-64
EEG 97-128	EEG 65-80
BIO	EEG 81-96
EOG	EEG 97-112
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ECG	MEGGrads1
MISC 1-24	MEGGrads2
STI 1-16	MEGGrads3
STI COMPOSITE	MEGMagns1
IAS	MEGMagns2
IASALL	AUX
<input type="checkbox"/> Fixed electric	
<input type="checkbox"/> Stimulus	
<input type="checkbox"/> Show layout	



While recording

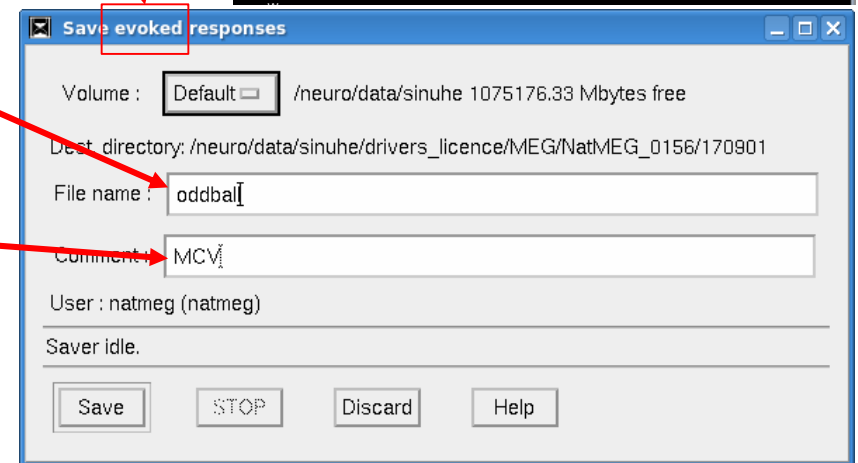
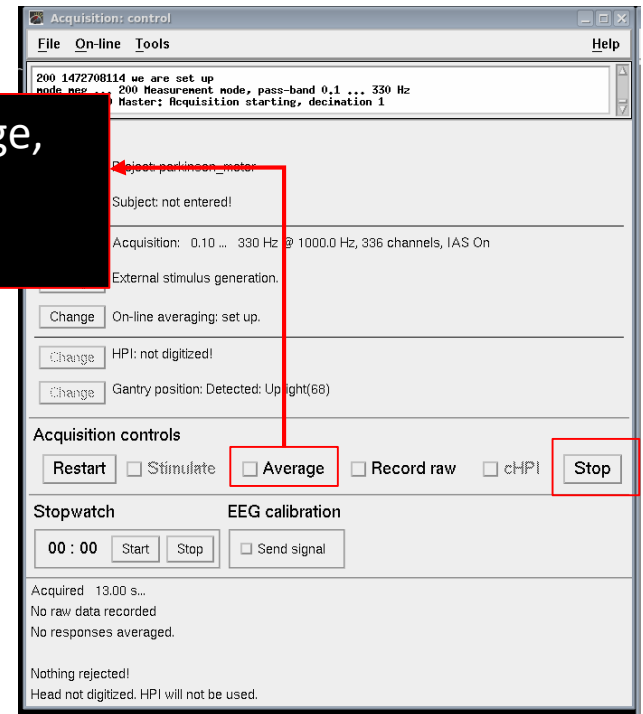
- Monitor participant
 - Talk to participant between sessions
 - Performance and sleepiness
 - Movements
- Monitor data quality
 - MEG (note bad channels)
 - EOG
 - Triggers
 - Online averages
- Track protocol
- Make lab notes
 - Use digital lab notebook



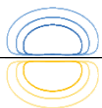
Save data

- A window asking to save data automatically appears when clicking **Stop**.
- Enter:
 - Filename (consistent file names)
 - Initials
- Data saved in your project folder

NB! If recording average, then it will save both EVOKED and RAW files



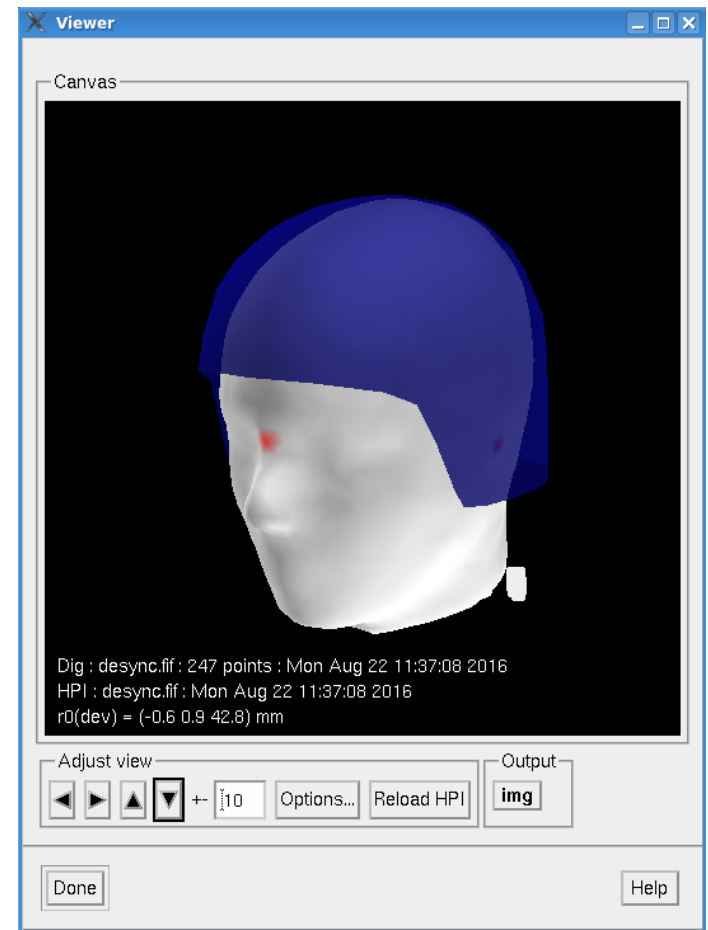
`/neuro/data/sinhue/your_project_name/MEG/NatMEG_NNNN/yymmdd/your_filename.fif`



Head position monitor

Open a terminal:

- Type:
`/data/MNE/mne_visualize_hpi`



While recording

- Monitor participant
 - Talk to participant between sessions
 - Performance and sleepiness
 - Movements
- Monitor data quality
 - MEG (note bad channels)
 - EOG/ECG/etc.
 - Triggers
 - Online averages
- Track protocol
- Make lab notes

