

AABC Release 1 Imaging Data Packages:

Data Package	shortname	Package Description
CIFTI Multi-modal IDPs Recommended	ProcIDP	This package contains multi-modal IDPs for structural, ASL, and fMRI as CIFTI files in their native HCP file structure locations. These contain the same data as in the .csv files available for download in Project Files, however these CIFTI files can be directly loaded into Connectome Workbench wb_view for visualization (on appropriate brain structures) or analyzed with CIFTI-compatible tools like PALM. The IDPs are outputs of the HCP Structural, Functional, and ASL IDP pipelines.
Structural Preprocessed Recommended	StructuralRecommended	This package is the recommended starting point for structural analyses and contains files precisely aligned across subjects using MSMAll multi-modal surface registration, QC snapshots, and outputs of the HCP Structural Preprocessing pipeline at 2.0mm/32k (suitable for 3T functional analysis), which is the result of applying PreFreeSurferPipeline, FreeSurferPipeline, PostFreeSurferPipeline, MSMAllPipeline, and the Pseudo Transmit Field Correction of T1w/T2w myelin maps.
Structural Preprocessed Extended	StructuralExtended	This package contains additional structural preprocessing files, including outputs of MSMSulc registration, FreeSurfer and other extra files at 2.0mm/32k (suitable for 3T functional analysis) that may be useful to select users, and a StructuralQC scene that can be viewed in Connectome Workbench wb_view. It contains outputs of the HCP Structural Preprocessing pipeline, which is the result of applying PreFreeSurferPipeline, FreeSurferPipeline, PostFreeSurferPipeline, MSMAllPipeline, and the Pseudo Transmit Field Correction of T1w/T2w myelin maps.
ASL Preprocessed Recommended	ProcASL	This package contains outputs of the mbPCASLhr scan processed with the ASL processing pipeline including maps of estimated perfusion (CBF) and arterial transit time (ATT) mapped to the surface using MSMAll multi-modal surface registration, estimates of CBF and ATT in MNINonLinear volume space, and QC snapshots and

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		an ASLQC scene that can be viewed in Connectome Workbench wb_view. These were generated from the HCP ASL Preprocessing pipeline, which is the result of applying hcpasl.
Diffusion Preprocessed Recommended	DiffusionRecommended	This package contains diffusion weighted images aligned to the subject's T1w space that have been corrected for motion, distortions, and outliers using FSL's 'eddy' tool. It also includes diffusion weighting (bvals), direction (bvecs) for the two sets of diffusion sensitizing directions ('dir98' and 'dir99'), QC files generated by FSL's 'QUAD' tool, a file (grad_dev.nii.gz) that can be used to account for gradient nonlinearities during model fitting, and outputs of BedpostX that can be used for probabilistic tractography. These were generated from the HCP Diffusion Preprocessing pipeline and Bedpostx pipeline, which is the result of applying DiffPreprocPipeline and bedpostx_gpu.
Resting State fMRI Preprocessed Recommended	RestFmriRecommended	This package contains recommended rfMRI files (for all resting-state runs) including spatial and temporal ICA-cleaned CIFTI files precisely aligned across subjects using the MSMAll multi-modal surface registration. It also contains NIFTI volumetric files that in some cases are appropriate to analyze together with the CIFTI files (e.g., to compare the two). Analyzing NIFTI volumetric files alone is NOT RECOMMENDED. It contains outputs of HCP Functional Preprocessing for resting state scans, which is the result of applying GenericfMRIVolumeProcessingPipeline, GenericfMRISurfaceProcessingPipeline, hcp_fix_multi_run, sICA component reclassification, MSMAllPipeline, and tICAPipeline.
Task fMRI Preprocessed Recommended	TaskFmriRecommended	This package contains recommended tfMRI files for task runs processed individually [VISMOTOR, FACENAME, and CARIT (Go/No Go)] including spatial and temporal ICA-cleaned CIFTI files precisely aligned across subjects using the MSMAll multi-modal surface registration. It also contains NIFTI volumetric files that in some cases are appropriate to analyze together with the CIFTI files (e.g., to compare the two).

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		Analyzing NIFTI volumetric files alone is NOT RECOMMENDED. It contains outputs of HCP Functional Preprocessing for task scans, which is the result of applying GenericfMRIVolumeProcessingPipeline, GenericfMRISurfaceProcessingPipeline, hcp_fix_multi_run, sICA component reclassification, MSMAllPipeline, and tICAPipeline.
Concatenated fMRI Preprocessed Recommended	ConcatFmriRecommended	This package contains recommended concatenated (both resting state and task fMRI) data including spatial and temporal ICA-cleaned CIFTI files precisely aligned across subjects using the MSMAll multi-modal surface registration. It also contains NIFTI volumetric files that in some cases are appropriate to analyze together with the CIFTI files (e.g., to compare the two). Analyzing NIFTI volumetric files alone is NOT RECOMMENDED. It contains outputs of HCP Functional Preprocessing for resting state and task scans, which is the result of applying GenericfMRIVolumeProcessingPipeline, GenericfMRISurfaceProcessingPipeline, hcp_fix_multi_run, sICA component reclassification, MSMAllPipeline, and tICAPipeline.
Structural Unprocessed	UnprocStruc	This package contains multi-echo MPRAGE (T1 weighted) and T2-SPACE (T2 weighted) scans (in NIFTI format), reconstructions both with and without Siemen's 'Prescan Normalize' feature, associated navigators for each scan, reconstructions of each of the four separate echoes from the multi-echo T1w scan, reconstructions of the RMS of the four T1w echoes, and a session report file that provides an overview of the usable imaging data collected during the participant's visit.
Diffusion Unprocessed	UnprocDmri	This package contains diffusion weighted images aligned to the subject's T1w space that have been corrected for motion, distortions, and outliers using FSL's 'eddy' tool. It also includes diffusion weighting (bvals), direction (bvecs) for the two sets of diffusion sensitizing directions ('dir98' and 'dir99'), QC files generated by FSL's 'QUAD' tool, a file (grad_dev.nii.gz)

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		that can be used to account for gradient nonlinearities during model fitting, and outputs of BedpostX that can be used for probabilistic tractography. These were generated from the HCP Diffusion Preprocessing pipeline and Bedpostx pipeline, which is the result of applying DiffPreprocPipeline and bedpostx_gpu.
Resting State fMRI Unprocessed	UnprocRfmri	This package contains both pairs of resting state fMRI scans (in NIFTI format), acquired with AP/PA phase encoding, plus SpinEchoFieldMaps, SBRefs, PsychoPy event timing, Physio files containing pulse oximetry and respiratory traces, and participant eye videos for each run.
Task fMRI Unprocessed	UnprocTfmri	This package contains the task fMRI scans for the HCA/AABC tasks: CARIT task (Go/NoGo Conditioned Approach Response Inhibition Task), FACENAME (paired-associative memory) task, and VISMOTOR (simultaneous motor and visual activation) task in NIFTI format, plus SpinEchoFieldMaps, SBRef, PsychoPy event timing and task modeling files, and a Physio file containing pulse oximetry and respiratory traces for each run.
ASL Unprocessed	UnprocPcasl	This package contains mbPCASLhr scan (Arterial Spin Labeling in NIFTI format; multiband 2D EPI pseudo-continuous arterial spin labeling with high spatial resolution), plus SpinEchoFieldMaps, PsychoPy event timing and participant eye video for the run.
HiResHp Structural Unprocessed	UnprocTseHires	This package contains turbo-spin-echo high spatial resolution hippocampal structural scan (in NIFTI format), reconstructed both without and with Siemen's 'Prescan Normalize' feature, plus SpinEchoFieldMaps.