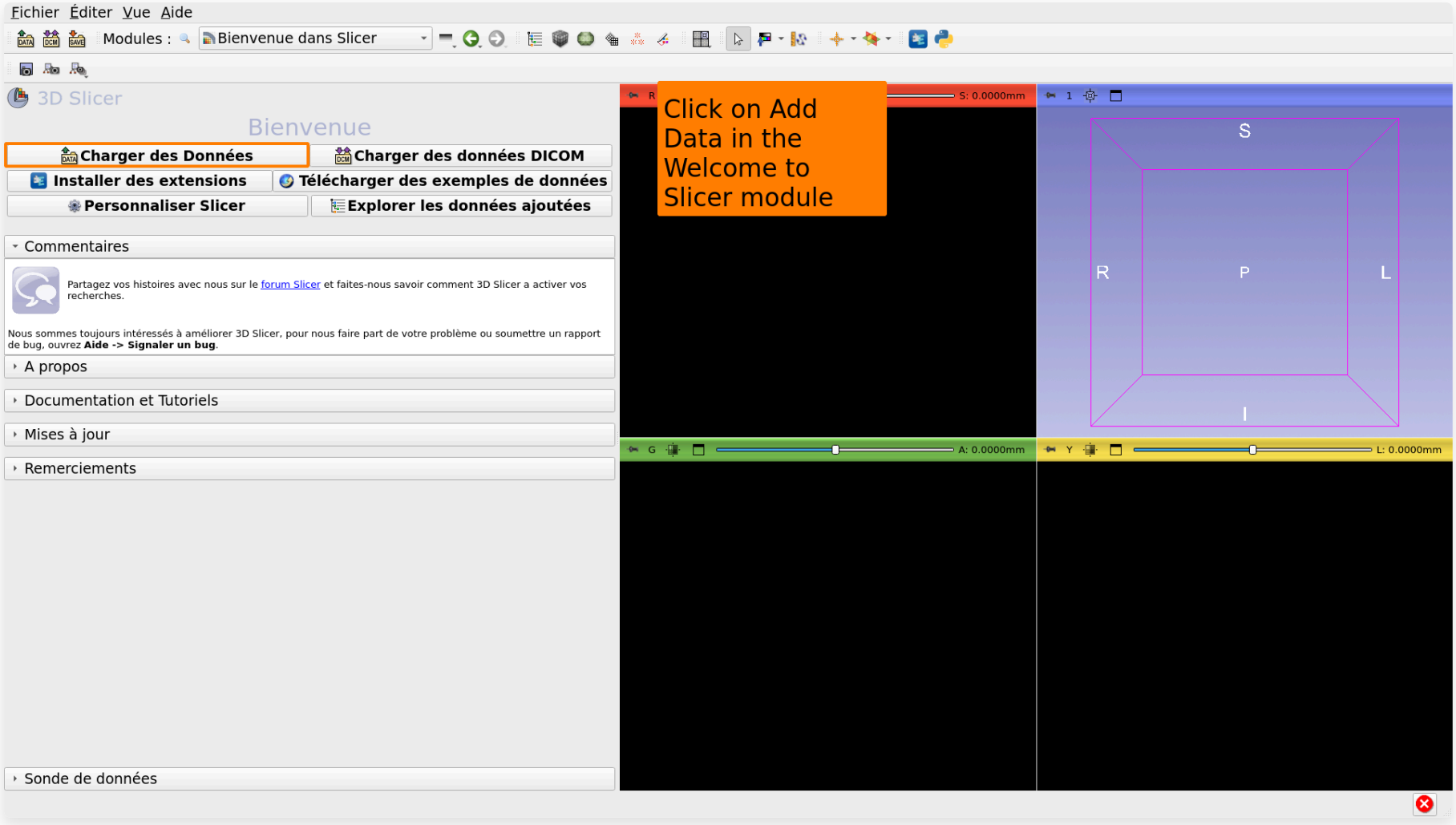
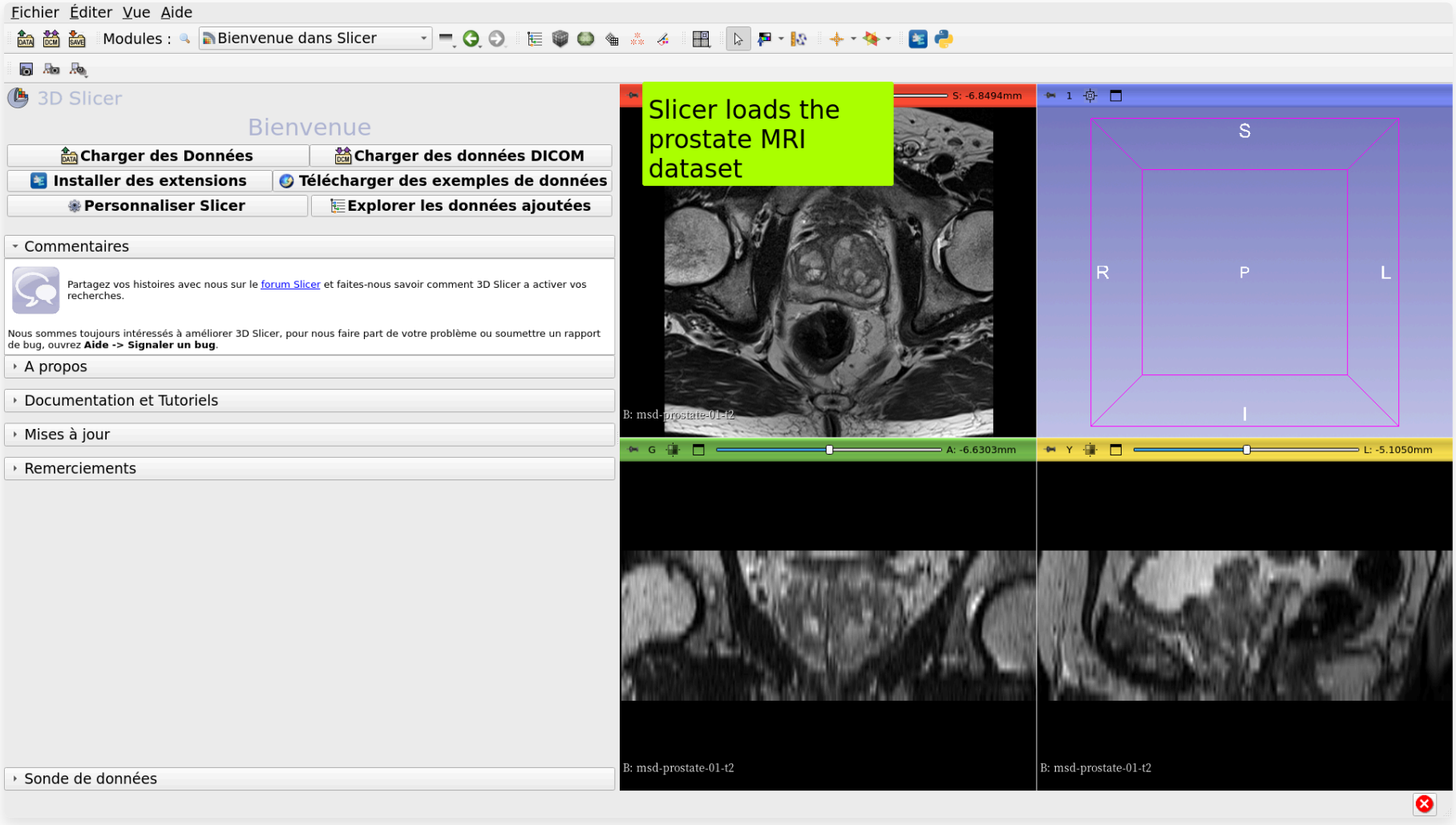
AIBasedSegmentation

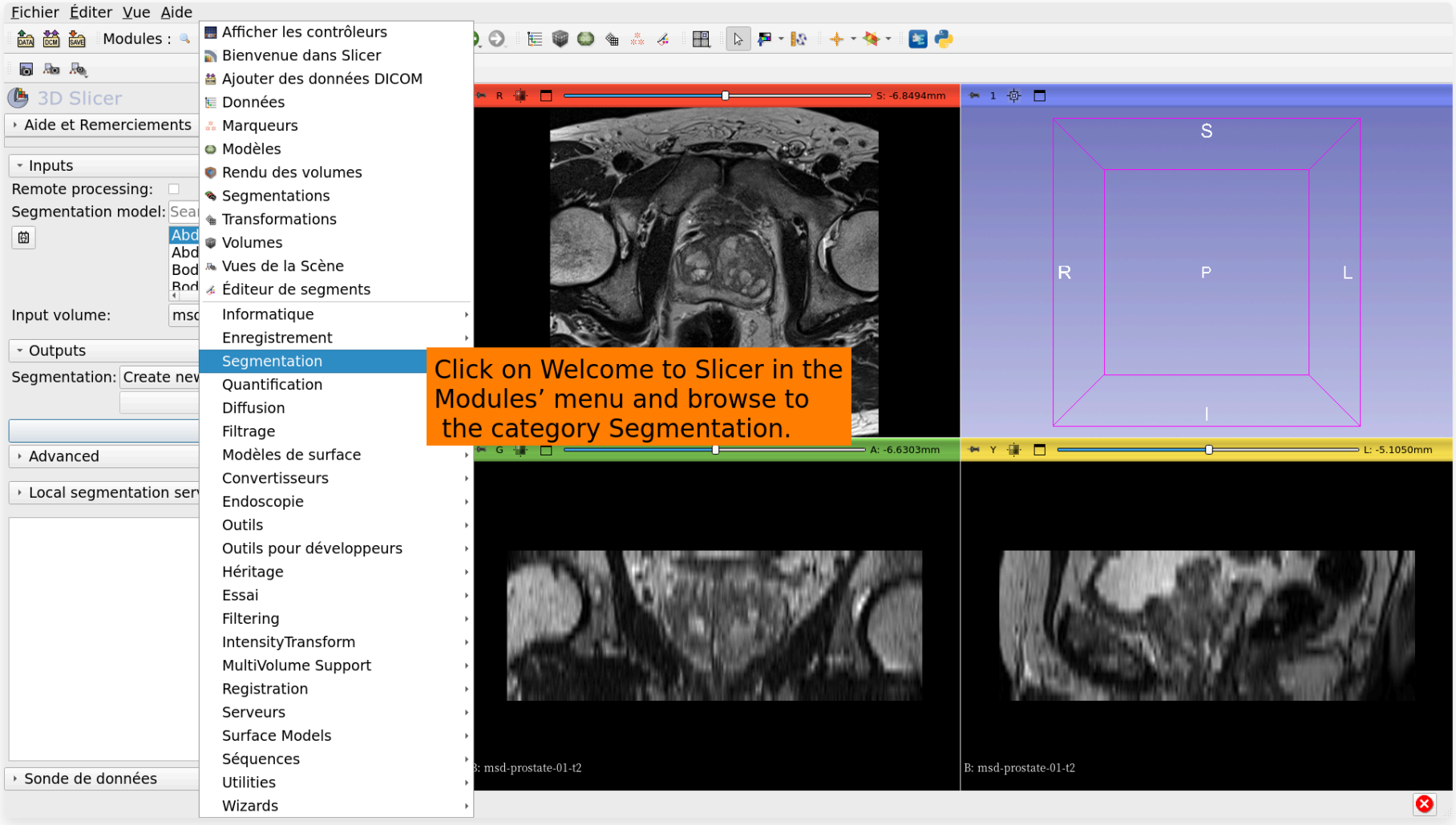
Sonia Pujol, Ph.D.

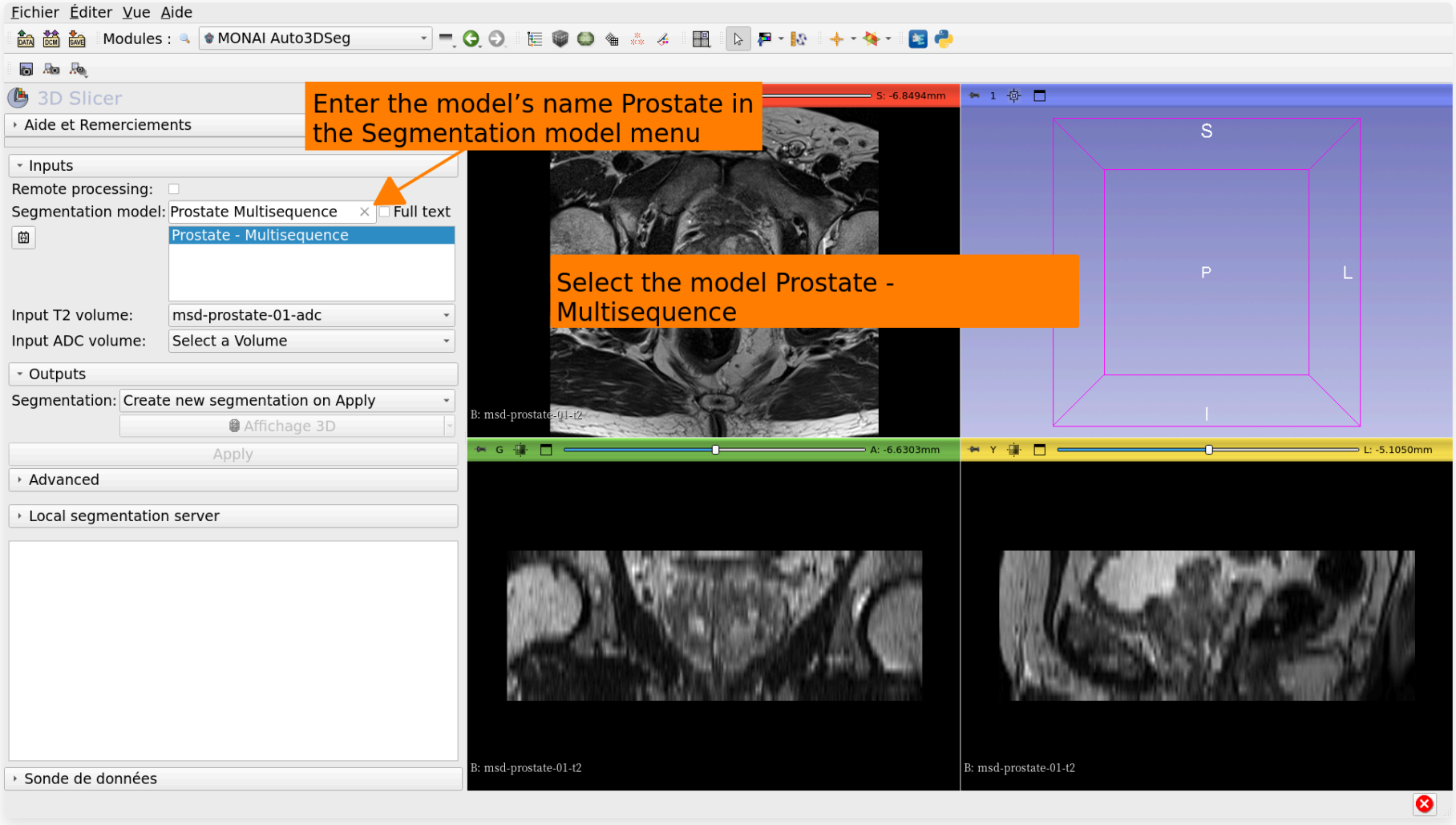
30/06/2025

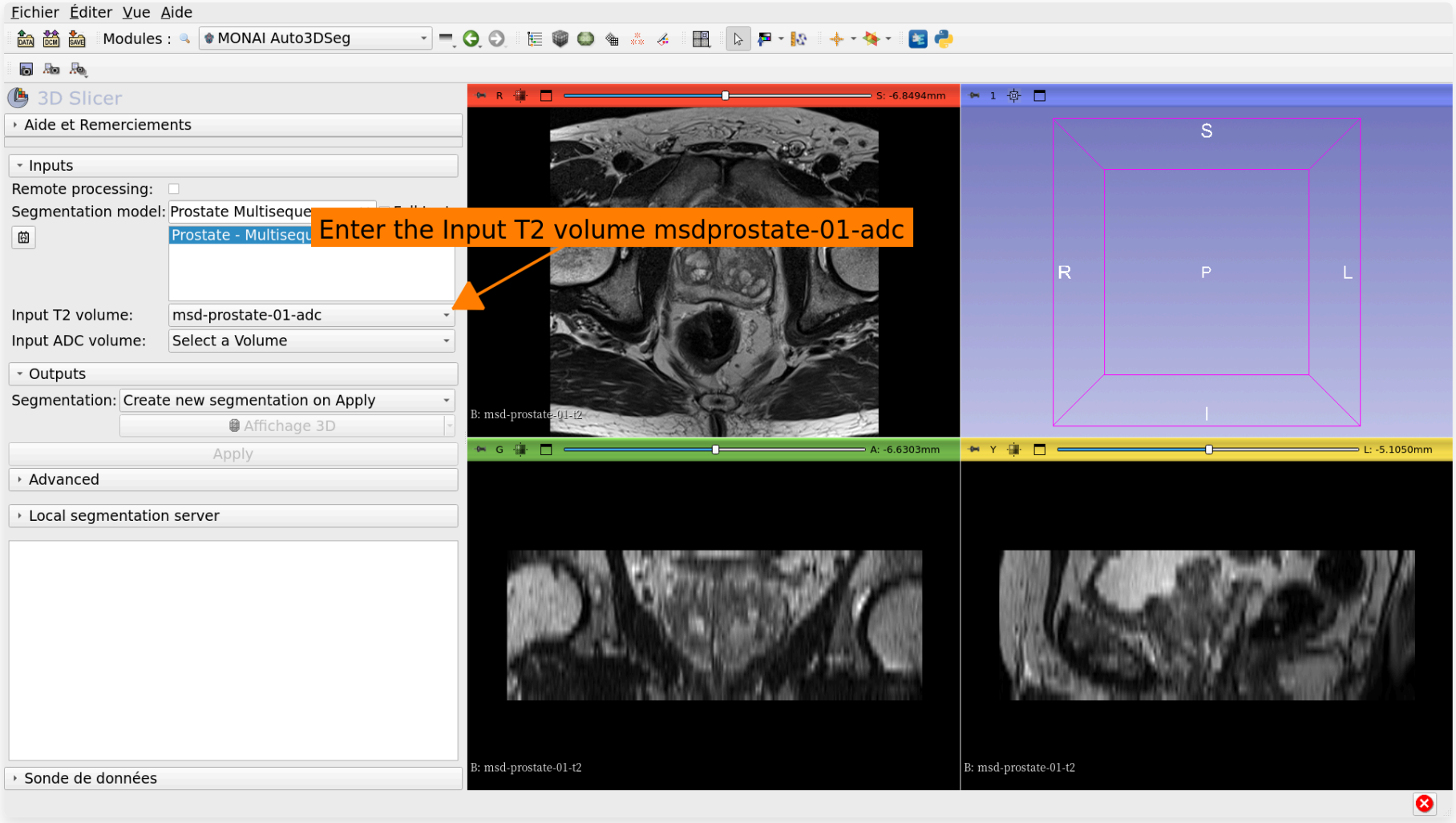
AI - based Segmentation in 3D Slicer

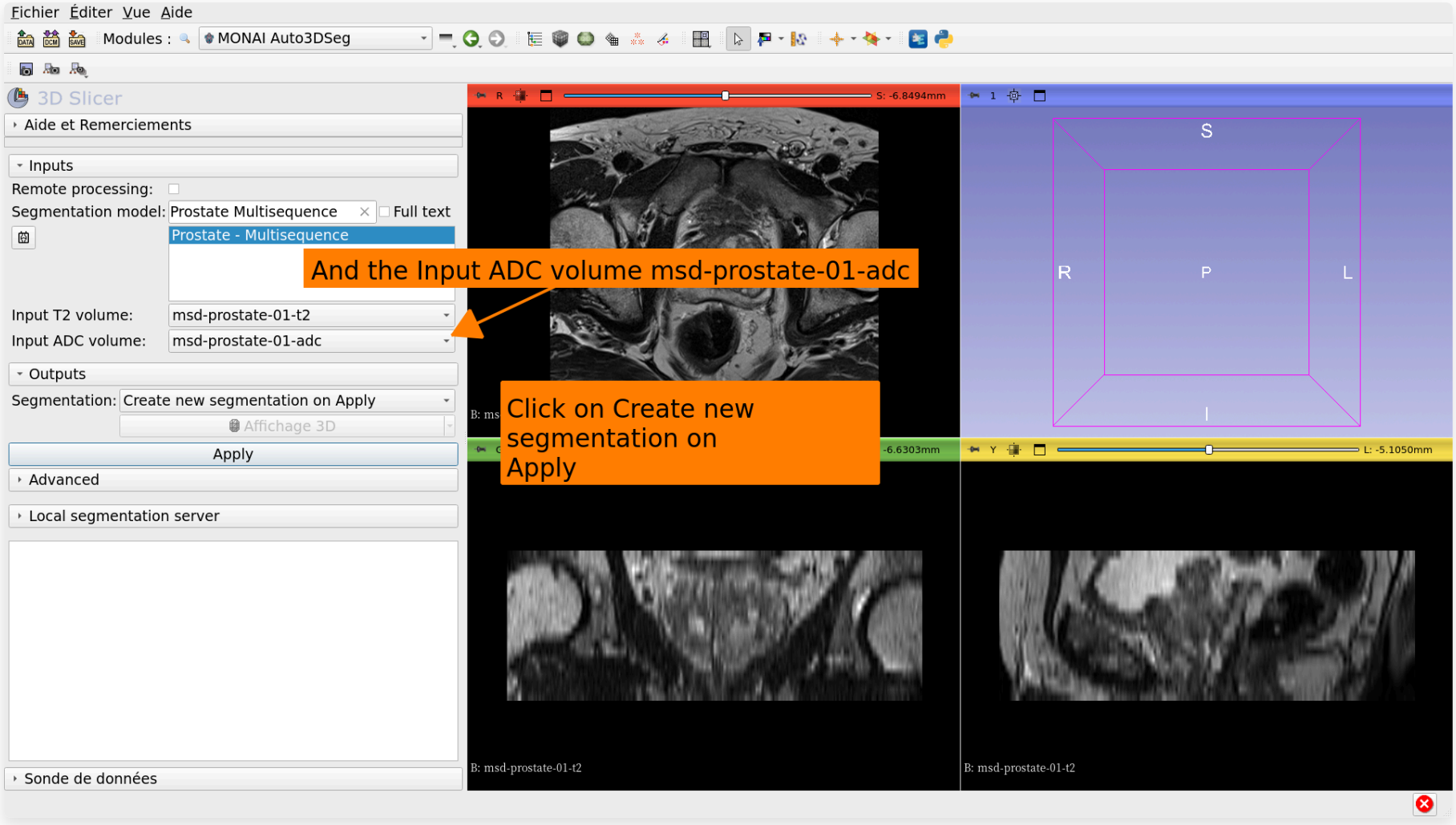

Fichier Éditer Vue Aide
Modules : Bienvenue dans Slicer
3D Slicer
Bienvenue
Charger des Données
Charger des données DICOM
Installer des extensions
Télécharger des exemples de données
Personnaliser Slicer
Explorer les données ajoutées
Commentaires
Partagez vos histoires avec nous sur le forum Slicer et faites-nous savoir comment 3D Slicer a activer vos recherches.
Nous sommes toujours intéressés à améliorer 3D Slicer, pour nous faire part de votre problème ou soumettre un rapport de bug, ouvrez Aide -> Signaler un bug.
A propos
Documentation et Tutoriels
Mises à jour
Remerciements
Sonde de données
Click on Add Data in the Welcome to Slicer module
S
R
P
L
I

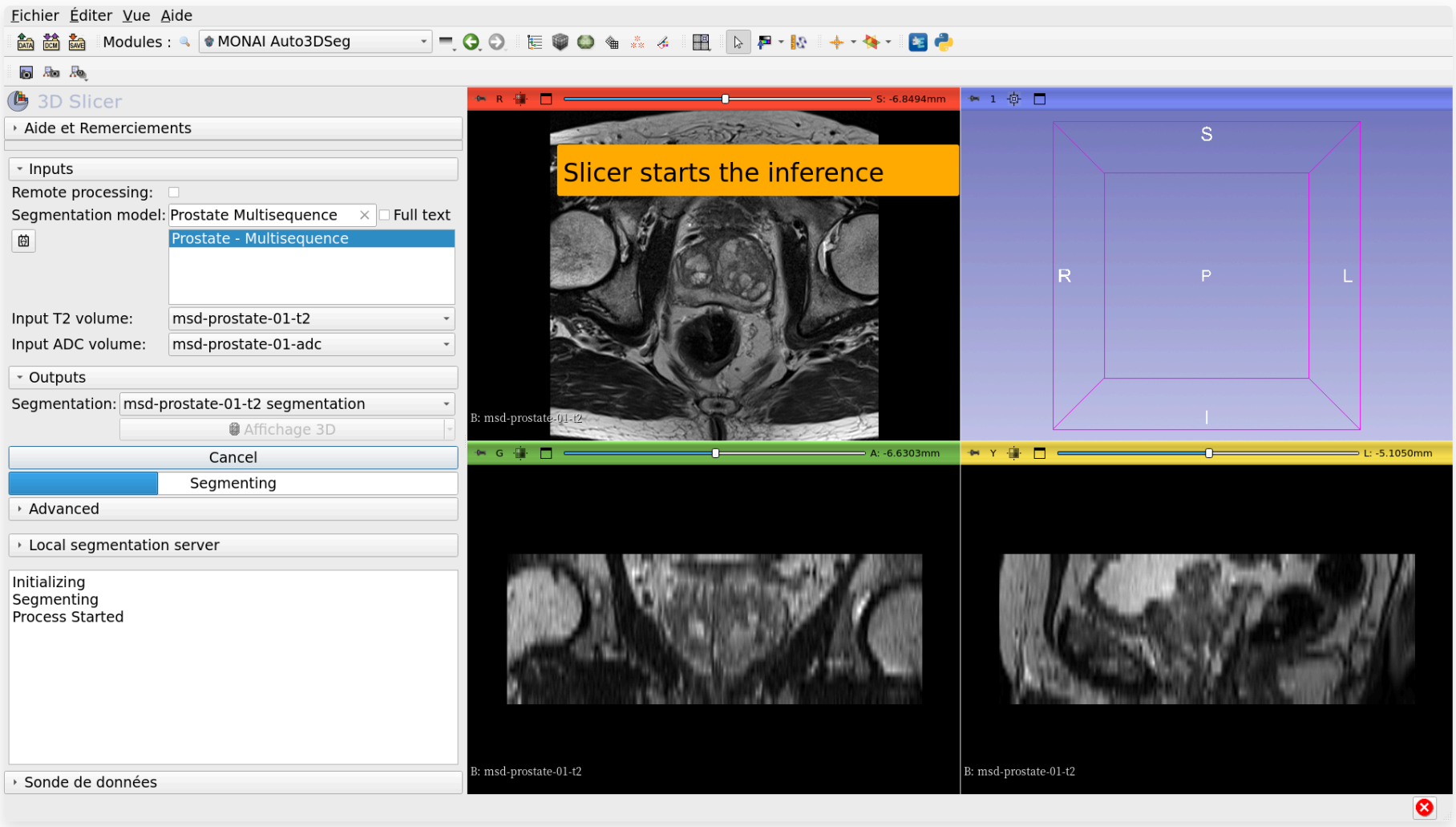

Fichier Éditer Vue Aide
Modules : Bienvenue dans Slicer
3D Slicer
Bienvenue
Charger des Données
Charger des données DICOM
Installer des extensions
Télécharger des exemples de données
Personnaliser Slicer
Explorer les données ajoutées
Commentaires
Partagez vos histoires avec nous sur le forum Slicer et faites-nous savoir comment 3D Slicer a activer vos recherches.
Nous sommes toujours intéressés à améliorer 3D Slicer, pour nous faire part de votre problème ou soumettre un rapport de bug, ouvrez Aide -> Signaler un bug.
A propos
Documentation et Tutoriels
Mises à jour
Remerciements
Sonde de données
Slicer loads the prostate MRI dataset
S: -6.8494mm
B: msd-prostate-01-t2
S
R
P
L
I
A: -6.6303mm
L: -5.1050mm
B: msd-prostate-01-t2
B: msd-prostate-01-t2

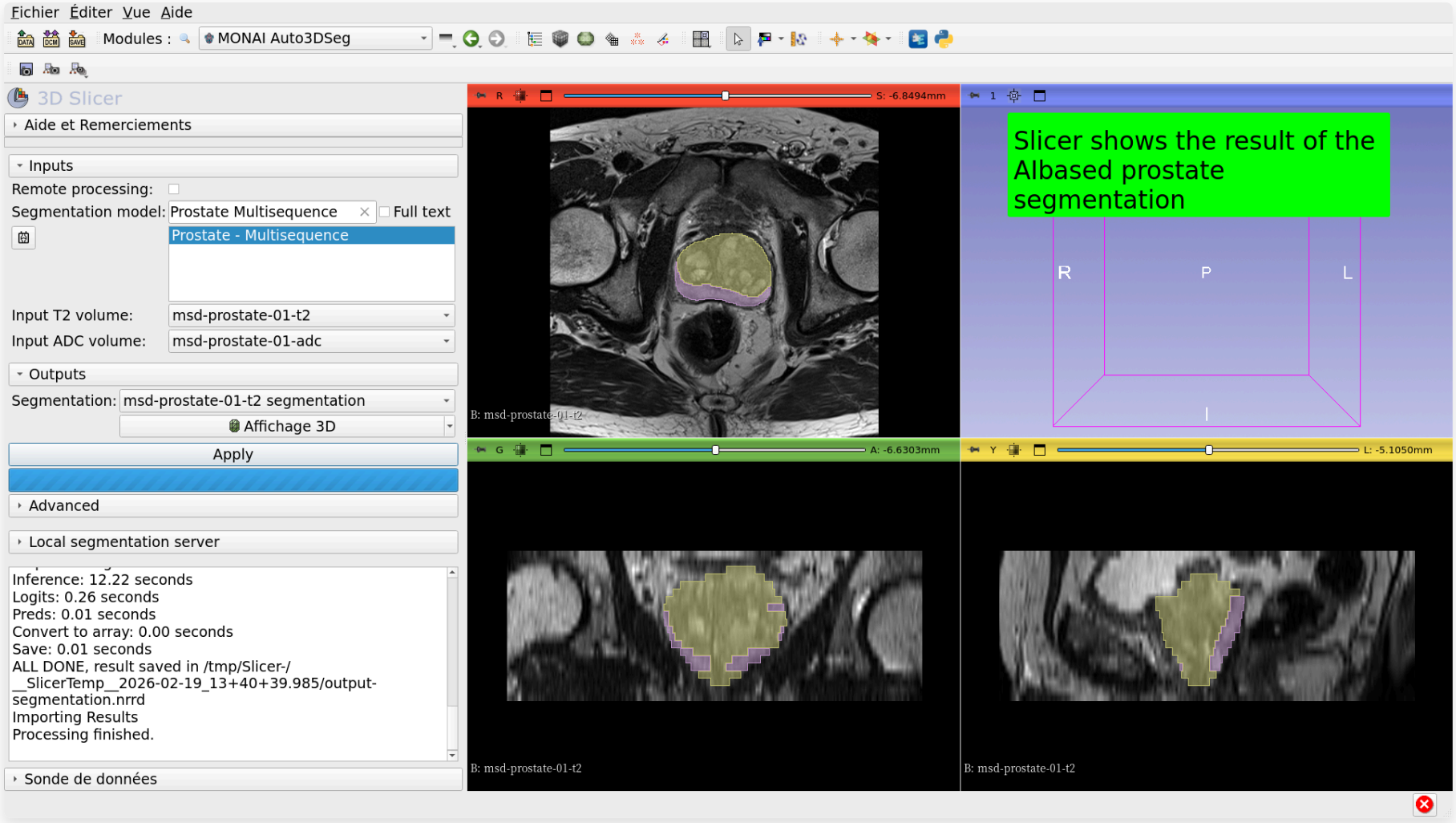

Fichier Éditer Vue Aide
Modules :
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model:
Input volume:
Outputs
Segmentation:
Advanced
Local segmentation ser
Sonde de données
Afficher les contrôleurs
Bienvenue dans Slicer
Ajouter des données DICOM
Données
Marqueurs
Modèles
Rendu des volumes
Segmentations
Transformations
Volumes
Vues de la Scène
Éditeur de segments
Informatique
Enregistrement
Segmentation
Quantification
Diffusion
Filtrage
Modèles de surface
Convertisseurs
Endoscopie
Outils
Outils pour développeurs
Héritage
Essai
Filtering
IntensityTransform
MultiVolume Support
Registration
Serveurs
Surface Models
Séquences
Utilities
Wizards
Click on Welcome to Slicer in the Modules' menu and browse to the category Segmentation.
S: -6.8494mm
A: -6.6303mm
L: -5.1050mm
S
R
P
L
I
B: msd-prostate-01-t2
B: msd-prostate-01-t2

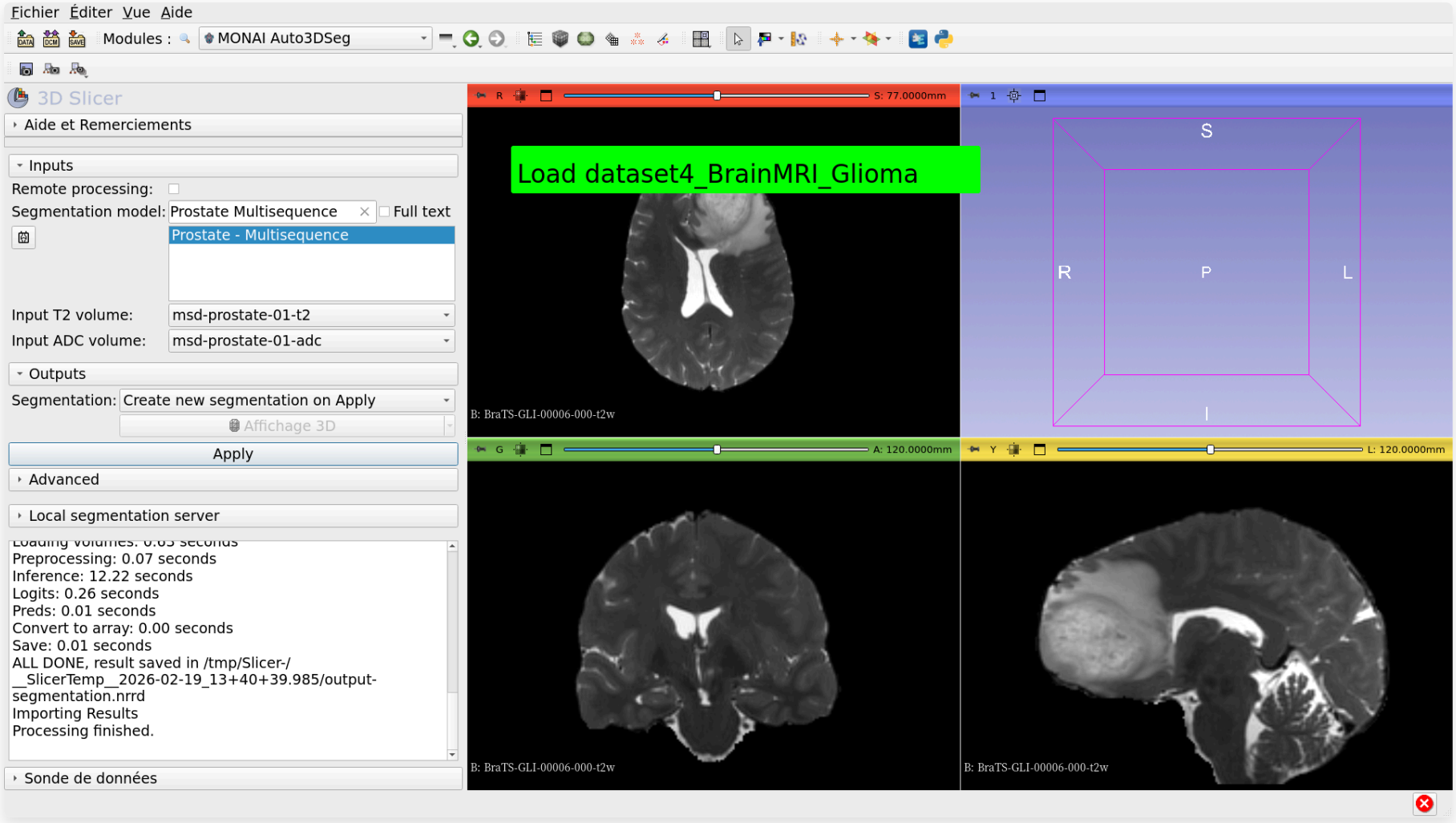

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Prostate Multisequence
Full text
Prostate - Multisequence
Input T2 volume: msd-prostate-01-adc
Input ADC volume: Select a Volume
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
Sonde de données
Enter the model's name Prostate in the Segmentation model menu
Select the model Prostate - Multisequence
S: -6.8494mm
A: -6.6303mm
L: -5.1050mm
B: msd-prostate-01-t2
S
P
L
I

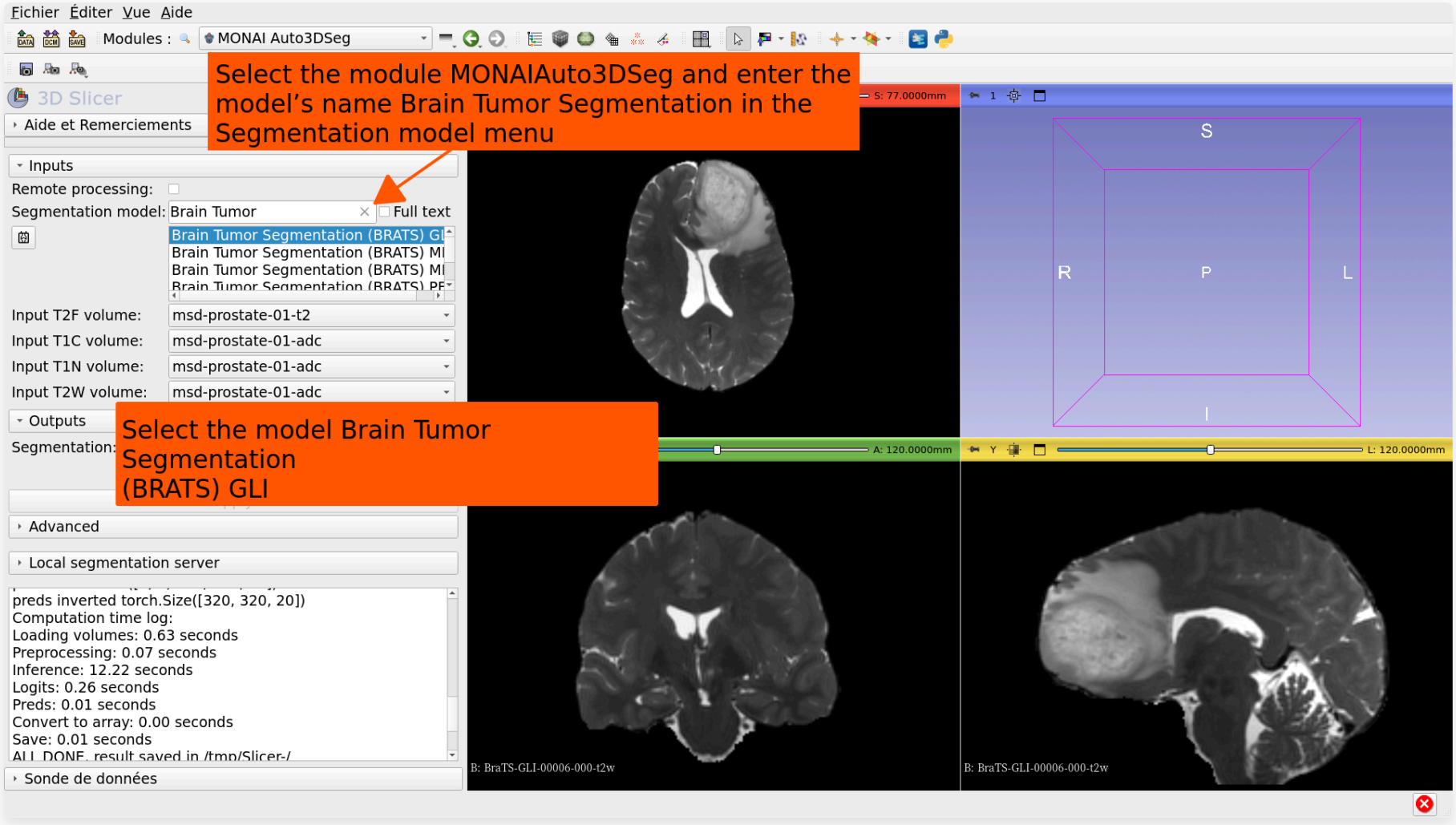

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model:
Prostate - Multiseq
Enter the Input T2 volume msdprostate-01-adc
Input T2 volume:
msd-prostate-01-adc
Input ADC volume:
Select a Volume
Outputs
Segmentation:
Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
Sonde de données
S: -6.8494mm
B: msd-prostate-01-t2
S
R
P
L
I
A: -6.6303mm
B: msd-prostate-01-t2
L: -5.1050mm
B: msd-prostate-01-t2

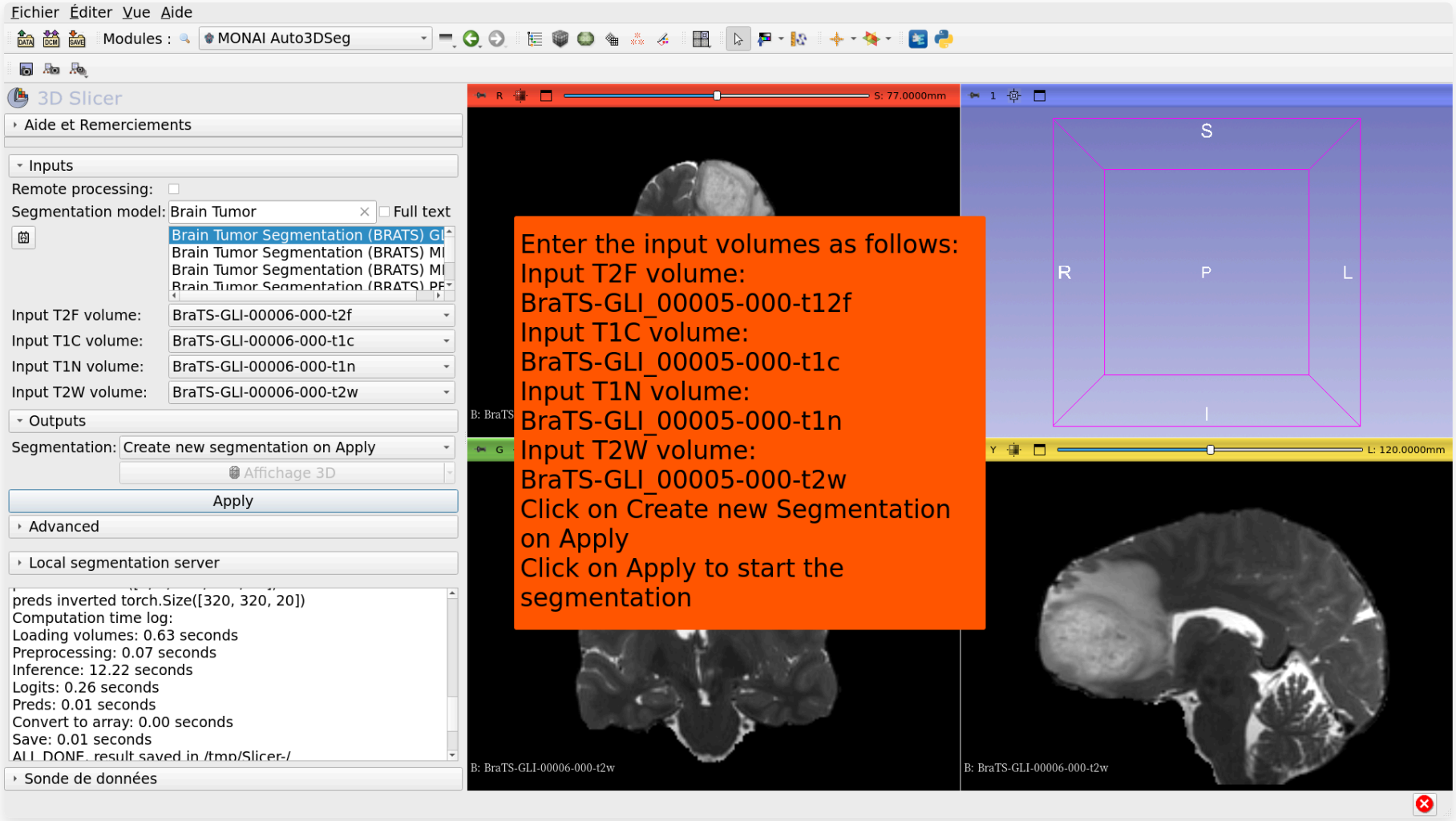

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Prostate Multisequence
Full text
Prostate - Multisequence
And the Input ADC volume msd-prostate-01-adc
Input T2 volume: msd-prostate-01-t2
Input ADC volume: msd-prostate-01-adc
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
Sonde de données
Click on Create new segmentation on Apply
S
R
P
L
I
B: msd-prostate-01-t2
B: msd-prostate-01-t2

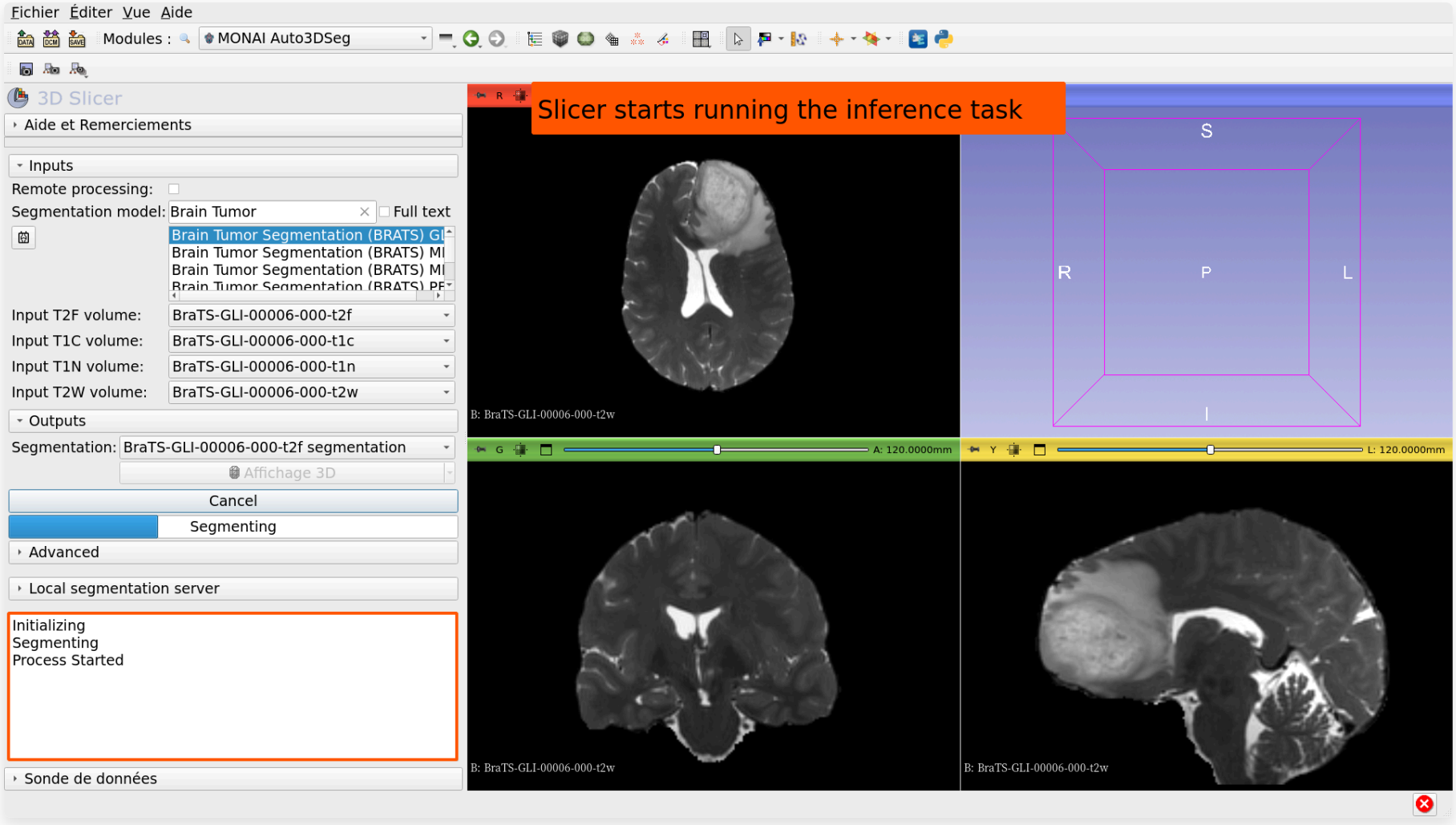

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Prostate Multisequence
Full text
Prostate - Multisequence
Input T2 volume: msd-prostate-01-t2
Input ADC volume: msd-prostate-01-adc
Outputs
Segmentation: msd-prostate-01-t2 segmentation
Affichage 3D
Cancel
Segmenting
Advanced
Local segmentation server
Initializing
Segmenting
Process Started
Sonde de données
Slicer starts the inference
S
R
P
L
I
B: msd-prostate-01-t2

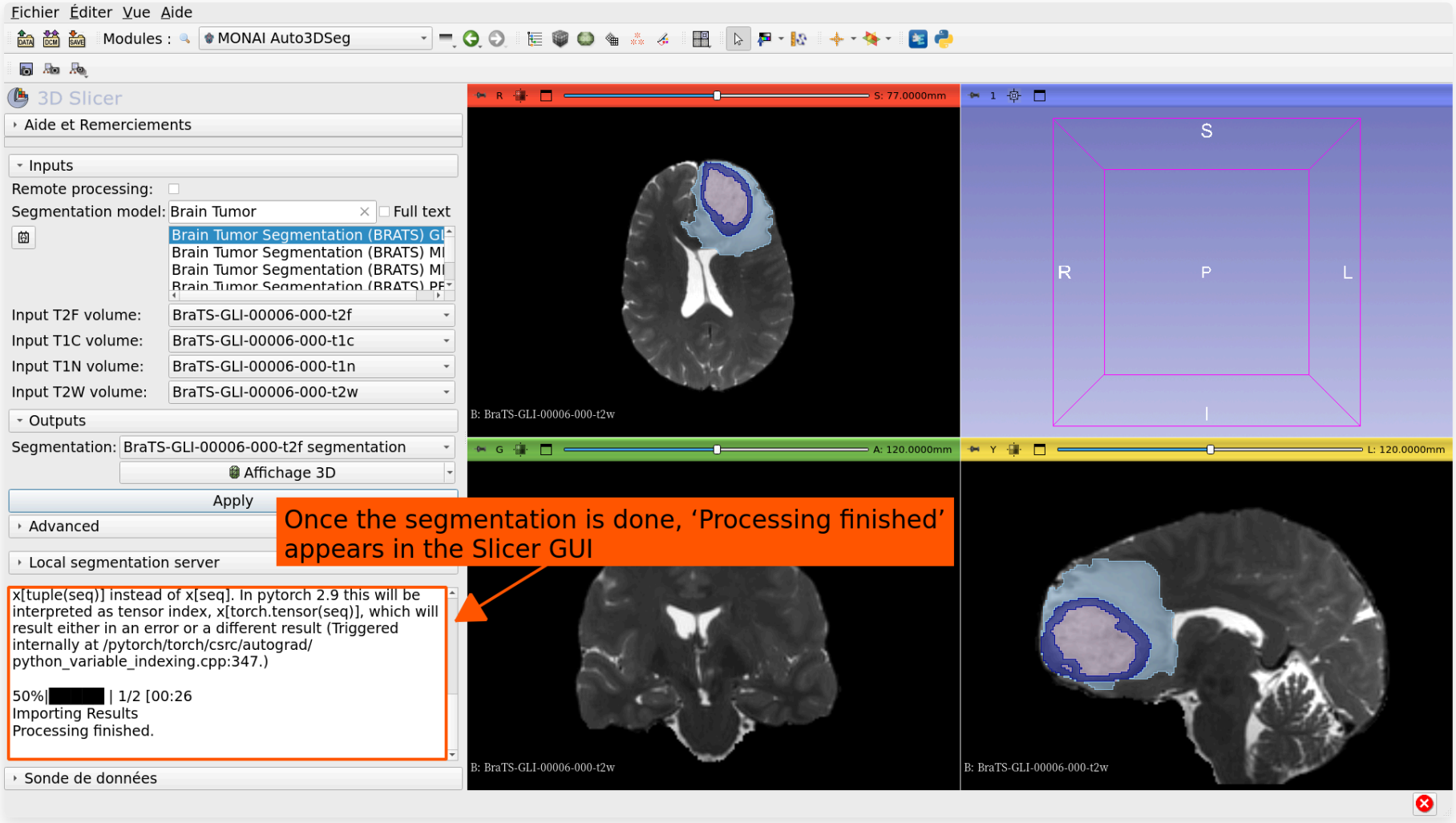

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Prostate Multisequence
Full text
Prostate - Multisequence
Input T2 volume: msd-prostate-01-t2
Input ADC volume: msd-prostate-01-adc
Outputs
Segmentation: msd-prostate-01-t2 segmentation
Affichage 3D
Apply
Advanced
Local segmentation server
Inference: 12.22 seconds
Logits: 0.26 seconds
Preds: 0.01 seconds
Convert to array: 0.00 seconds
Save: 0.01 seconds
ALL DONE, result saved in /tmp/Slicer-/__SlicerTemp__2026-02-19_13+40+39.985/output-segmentation.nrrd
Importing Results
Processing finished.
Sonde de données
S: -6.8494mm
B: msd-prostate-01-t2
Slicer shows the result of the AIbased prostate segmentation
R
P
L
I
A: -6.6303mm
L: -5.1050mm
B: msd-prostate-01-t2
B: msd-prostate-01-t2

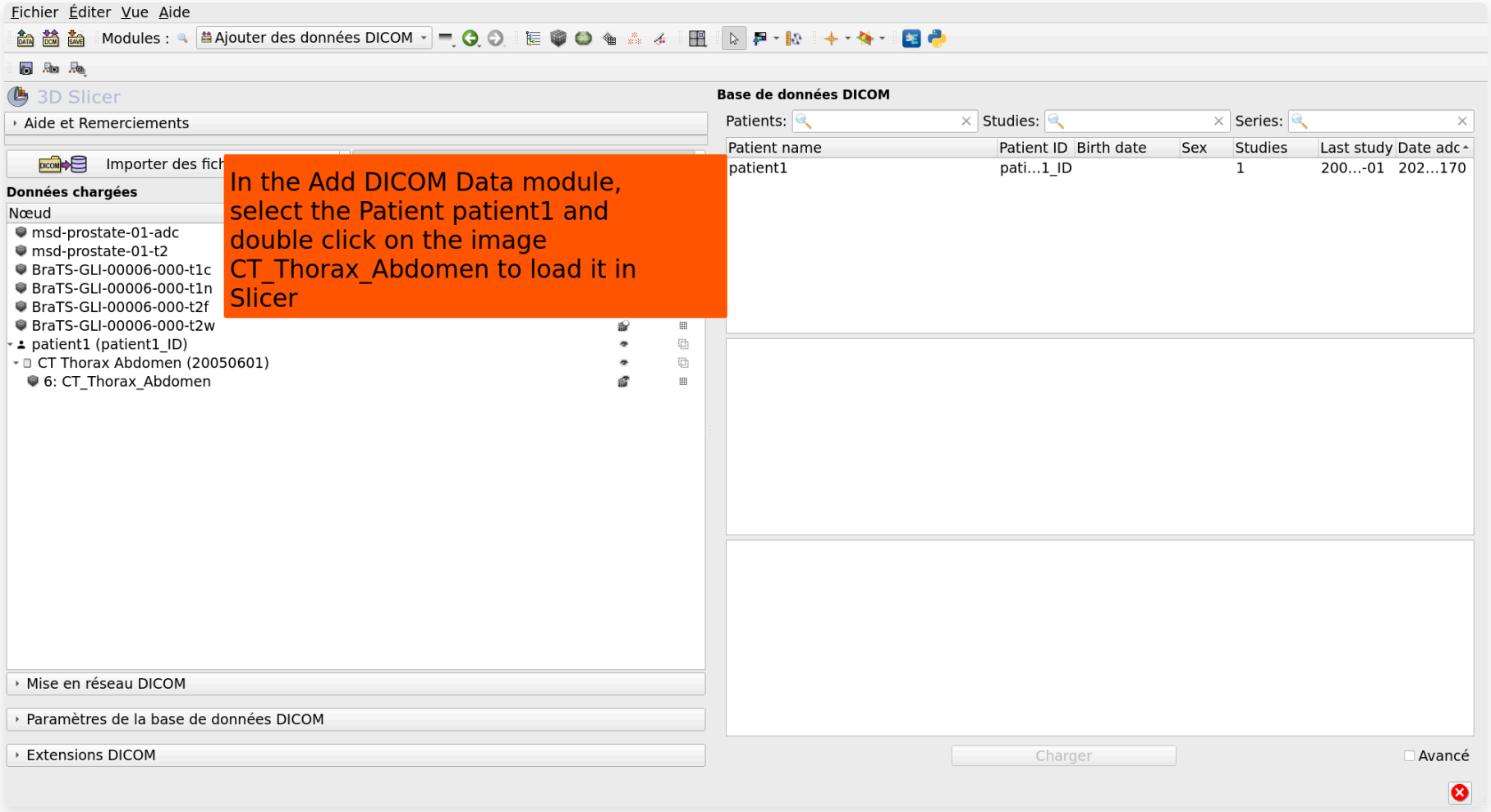

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Prostate Multisequence
Full text
Prostate - Multisequence
Input T2 volume: msd-prostate-01-t2
Input ADC volume: msd-prostate-01-adc
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
Preprocessing: 0.07 seconds
Inference: 12.22 seconds
Logits: 0.26 seconds
Preds: 0.01 seconds
Convert to array: 0.00 seconds
Save: 0.01 seconds
ALL DONE, result saved in /tmp/Slicer-/__SlicerTemp__2026-02-19_13+40+39.985/output-segmentation.nrrd
Importing Results
Processing finished.
Sonde de données
Load dataset4_BrainMRI_Glioma
S
R
P
L
I
B: BraTS-GLI-00006-000-t2w

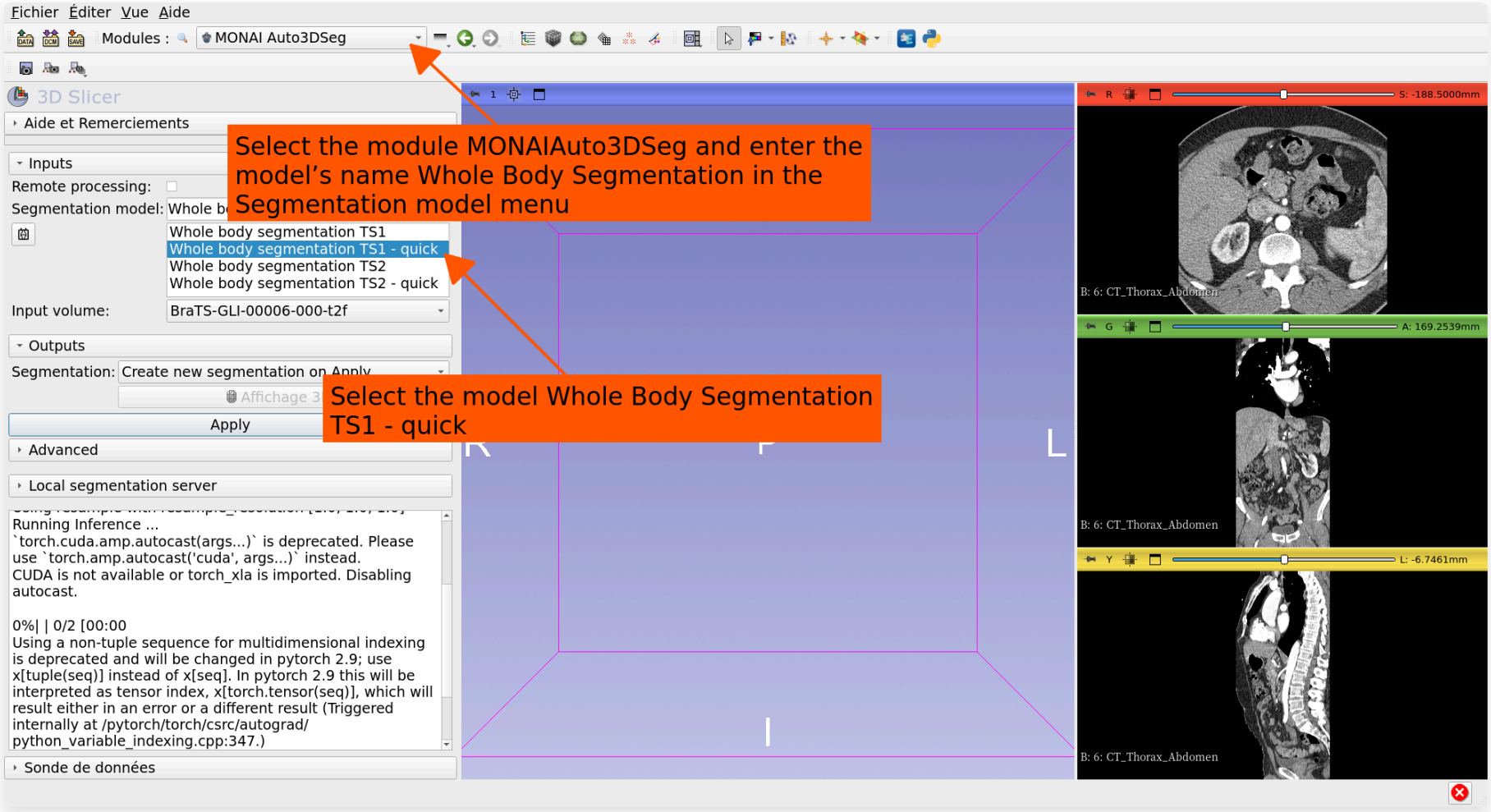

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Brain Tumor
Full text
Brain Tumor Segmentation (BRATS) GL
Brain Tumor Segmentation (BRATS) MI
Brain Tumor Segmentation (BRATS) MI
Input T2F volume: msd-prostate-01-t2
Input T1C volume: msd-prostate-01-adc
Input T1N volume: msd-prostate-01-adc
Input T2W volume: msd-prostate-01-adc
Outputs
Segmentation:
Advanced
Local segmentation server
preds inverted torch.Size([320, 320, 20])
Computation time log:
Loading volumes: 0.63 seconds
Preprocessing: 0.07 seconds
Inference: 12.22 seconds
Logits: 0.26 seconds
Preds: 0.01 seconds
Convert to array: 0.00 seconds
Save: 0.01 seconds
Sonde de données
Select the module MONAIAuto3DSeg and enter the model's name Brain Tumor Segmentation in the Segmentation model menu
Select the model Brain Tumor Segmentation (BRATS) GLI
S: 77.0000mm
S
R
P
L
I
A: 120.0000mm
L: 120.0000mm
B: BraTS-GLI-00006-000-t2w
B: BraTS-GLI-00006-000-t2w

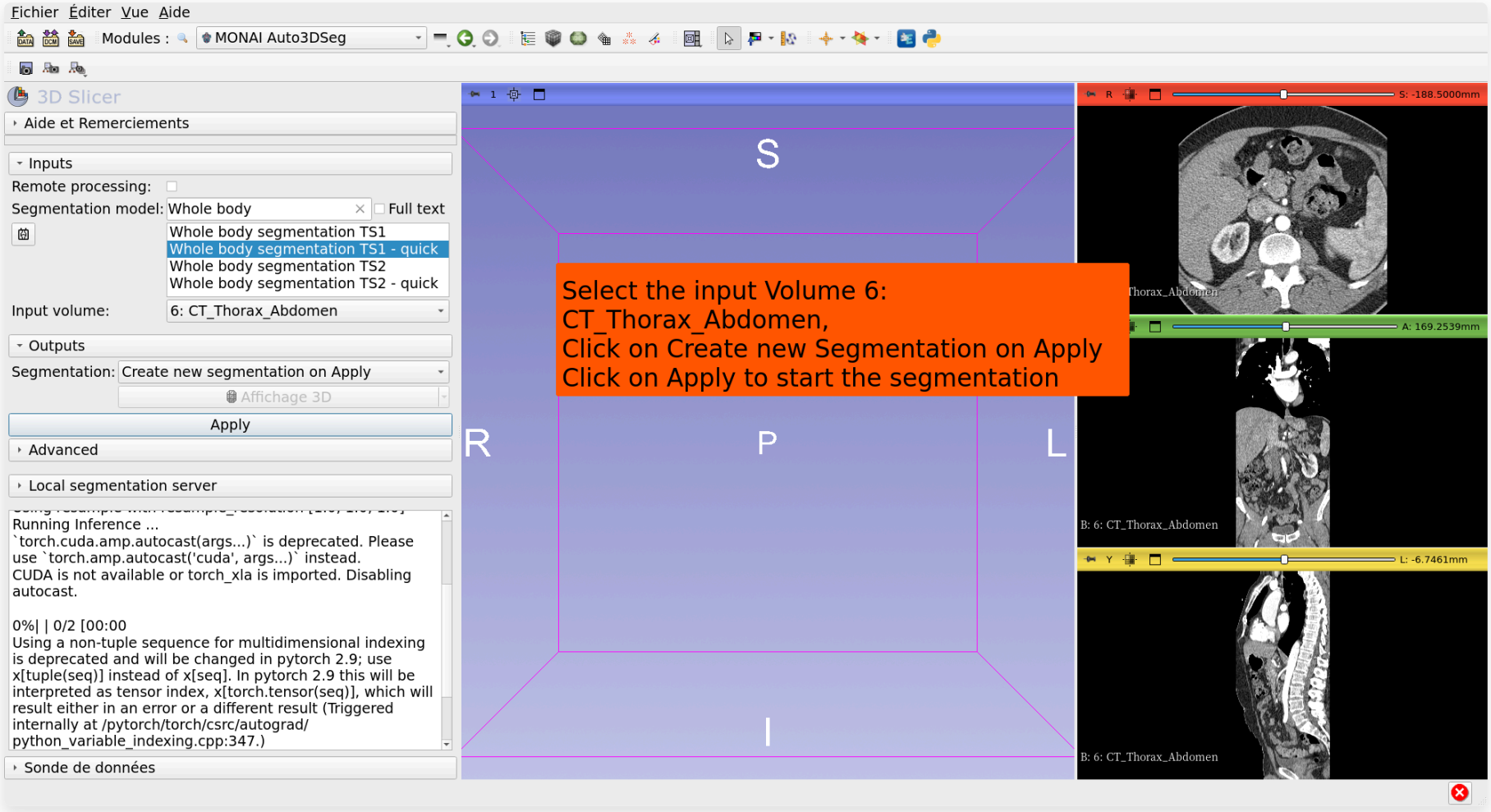

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Brain Tumor
Full text
Brain Tumor Segmentation (BRATS) Gl
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) PF
Input T2F volume: BraTS-GLI-00006-000-t2f
Input T1C volume: BraTS-GLI-00006-000-t1c
Input T1N volume: BraTS-GLI-00006-000-t1n
Input T2W volume: BraTS-GLI-00006-000-t2w
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
preds inverted torch.Size([320, 320, 20])
Computation time log:
Loading volumes: 0.63 seconds
Preprocessing: 0.07 seconds
Inference: 12.22 seconds
Logits: 0.26 seconds
Preds: 0.01 seconds
Convert to array: 0.00 seconds
Save: 0.01 seconds
ALL DONE, result saved in /tmp/Slicer-/
Sonde de données
S: 77.0000mm
L: 120.0000mm
S
R
P
L
I
B: BraTS-GLI-00006-000-t2w
B: BraTS-GLI-00006-000-t2w
Enter the input volumes as follows:
Input T2F volume:
BraTS-GLI_00005-000-t12f
Input T1C volume:
BraTS-GLI_00005-000-t1c
Input T1N volume:
BraTS-GLI_00005-000-t1n
Input T2W volume:
BraTS-GLI_00005-000-t2w
Click on Create new Segmentation on Apply
Click on Apply to start the segmentation

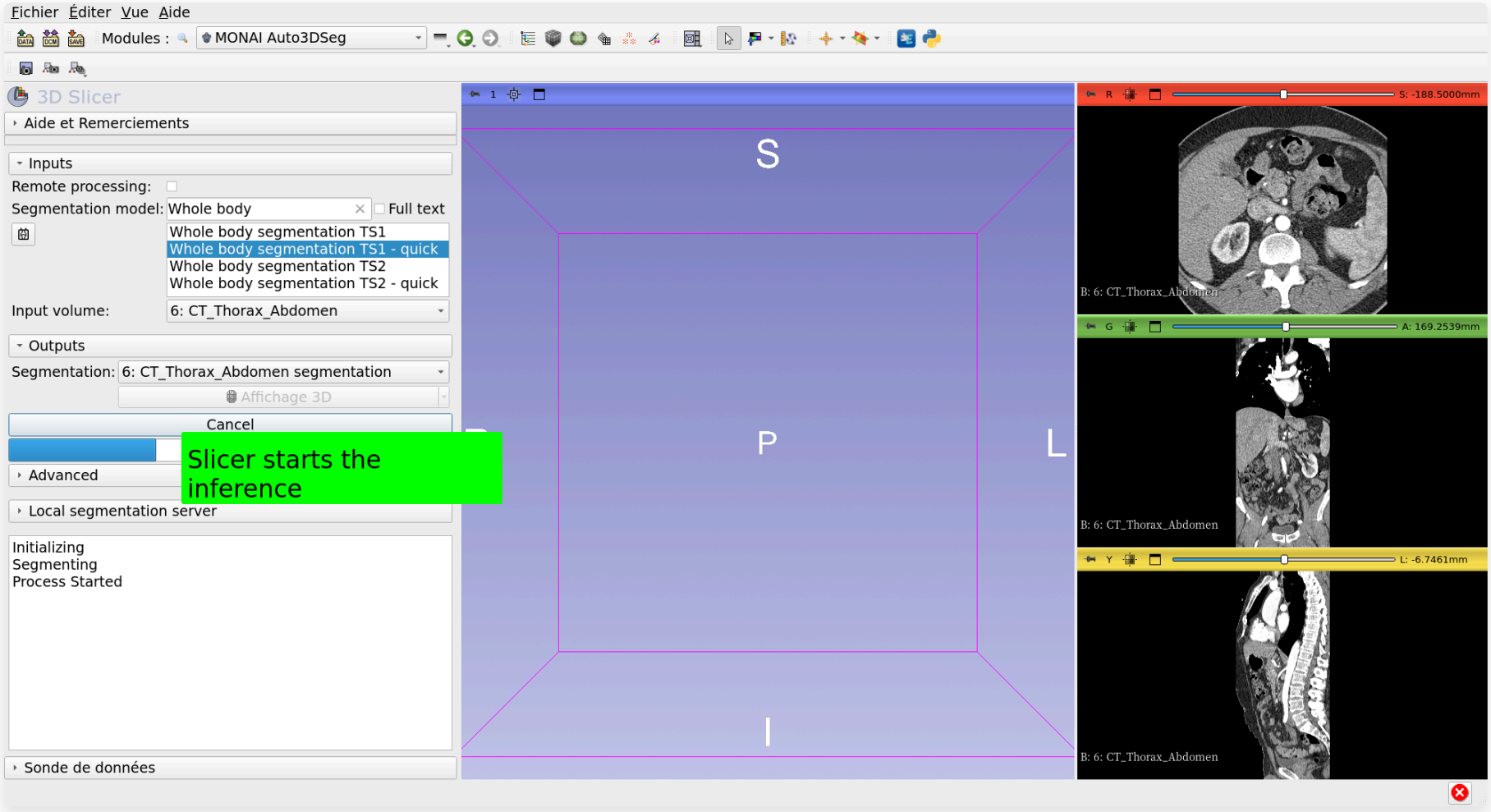

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Brain Tumor
Full text
Brain Tumor Segmentation (BRATS) Gl
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) PF
Input T2F volume: BraTS-GLI-00006-000-t2f
Input T1C volume: BraTS-GLI-00006-000-t1c
Input T1N volume: BraTS-GLI-00006-000-t1n
Input T2W volume: BraTS-GLI-00006-000-t2w
Outputs
Segmentation: BraTS-GLI-00006-000-t2f segmentation
Affichage 3D
Cancel
Segmenting
Advanced
Local segmentation server
Initializing
Segmenting
Process Started
Sonde de données
Slicer starts running the inference task
S
R
P
L
I
B: BraTS-GLI-00006-000-t2w
A: 120.0000mm
L: 120.0000mm
B: BraTS-GLI-00006-000-t2w
B: BraTS-GLI-00006-000-t2w

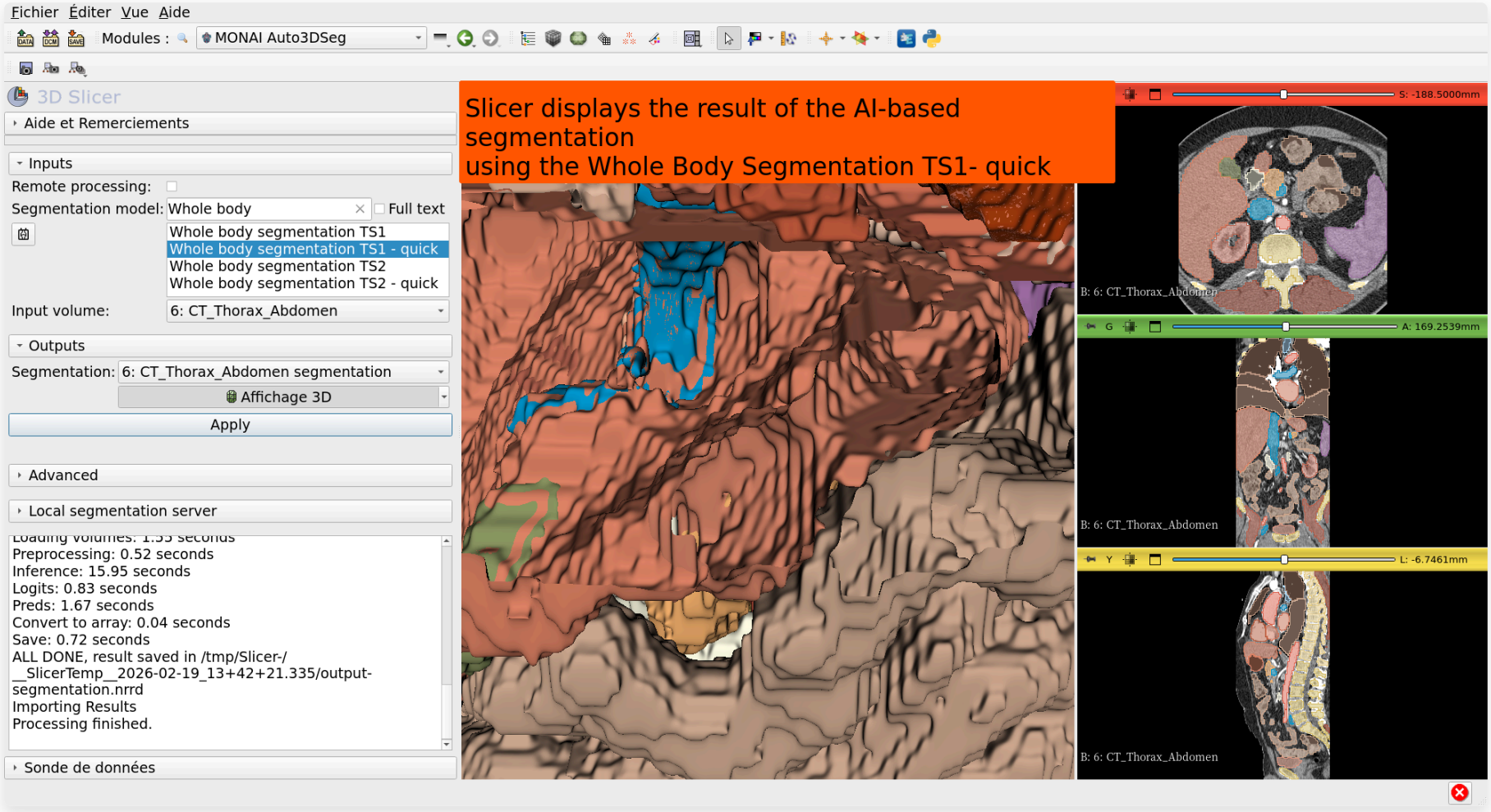

Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Brain Tumor
Full text
Brain Tumor Segmentation (BRATS) Gl
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) Ml
Brain Tumor Segmentation (BRATS) PF
Input T2F volume: BraTS-GLI-00006-000-t2f
Input T1C volume: BraTS-GLI-00006-000-t1c
Input T1N volume: BraTS-GLI-00006-000-t1n
Input T2W volume: BraTS-GLI-00006-000-t2w
Outputs
Segmentation: BraTS-GLI-00006-000-t2f segmentation
Affichage 3D
Apply
Advanced
Local segmentation server
x[tuple(seq)] instead of x[seq]. In pytorch 2.9 this will be interpreted as tensor index, x[torch.tensor(seq)], which will result either in an error or a different result (Triggered internally at /pytorch/torch/csrc/autograd/python_variable_indexing.cpp:347.)
50%| | 1/2 [00:26
Importing Results
Processing finished.
Sonde de données
S: 77.0000mm
B: BraTS-GLI-00006-000-t2w
S
R
P
L
I
A: 120.0000mm
L: 120.0000mm
Once the segmentation is done, ‘Processing finished’ appears in the Slicer GUI


Fichier Éditer Vue Aide
Modules :
Ajouter des données DICOM
3D Slicer
Aide et Remerciements
Importer des fich
Données chargées
Nœud
msd-prostate-01-adc
msd-prostate-01-t2
BraTS-GLI-00006-000-t1c
BraTS-GLI-00006-000-t1n
BraTS-GLI-00006-000-t2f
BraTS-GLI-00006-000-t2w
patient1 (patient1_ID)
CT Thorax Abdomen (20050601)
6: CT_Thorax_Abdomen
In the Add DICOM Data module, select the Patient patient1 and double click on the image CT_Thorax_Abdomen to load it in Slicer
Base de données DICOM
Patients:
Studies:
Series:
Patient name
Patient ID
Birth date
Sex
Studies
Last study
Date adc
patient1
pati...1_ID
1
200...-01
202...170
Mise en réseau DICOM
Paramètres de la base de données DICOM
Extensions DICOM
Charger
Avancé


Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Whole b
Whole body segmentation TS1
Whole body segmentation TS1 - quick
Whole body segmentation TS2
Whole body segmentation TS2 - quick
Input volume: BraTS-GLI-00006-000-t2f
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3
Apply
Advanced
Local segmentation server
Running Inference ...
`torch.cuda.amp.autocast(args...)` is deprecated. Please use `torch.amp.autocast('cuda', args...)` instead.
CUDA is not available or torch_xla is imported. Disabling autocast.
0%| | 0/2 [00:00
Using a non-tuple sequence for multidimensional indexing is deprecated and will be changed in pytorch 2.9; use x[tuple(seq)] instead of x[seq]. In pytorch 2.9 this will be interpreted as tensor index, x[torch.tensor(seq)], which will result either in an error or a different result (Triggered internally at /pytorch/torch/csrc/autograd/python_variable_indexing.cpp:347.)
Sonde de données
Select the module MONAIAuto3DSeg and enter the model's name Whole Body Segmentation in the Segmentation model menu
Select the model Whole Body Segmentation TS1 - quick
R
P
L
I
S: -188.5000mm
A: 169.2539mm
L: -6.7461mm
B: 6: CT_Thorax_Abdomen


Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Whole body
Full text
Whole body segmentation TS1
Whole body segmentation TS1 - quick
Whole body segmentation TS2
Whole body segmentation TS2 - quick
Input volume: 6: CT_Thorax_Abdomen
Outputs
Segmentation: Create new segmentation on Apply
Affichage 3D
Apply
Advanced
Local segmentation server
Running Inference ...
`torch.cuda.amp.autocast(args...)` is deprecated. Please use `torch.amp.autocast('cuda', args...)` instead.
CUDA is not available or torch_xla is imported. Disabling autocast.
0%| | 0/2 [00:00
Using a non-tuple sequence for multidimensional indexing is deprecated and will be changed in pytorch 2.9; use x[tuple(seq)] instead of x[seq]. In pytorch 2.9 this will be interpreted as tensor index, x[torch.tensor(seq)], which will result either in an error or a different result (Triggered internally at /pytorch/torch/csrc/autograd/python_variable_indexing.cpp:347.)
Sonde de données
S
R
P
L
I
Select the input Volume 6:
CT_Thorax_Abdomen,
Click on Create new Segmentation on Apply
Click on Apply to start the segmentation
S: -188.5000mm
A: 169.2539mm
B: 6: CT_Thorax_Abdomen
L: -6.7461mm
B: 6: CT_Thorax_Abdomen


Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Whole body
Full text
Whole body segmentation TS1
Whole body segmentation TS1 - quick
Whole body segmentation TS2
Whole body segmentation TS2 - quick
Input volume: 6: CT_Thorax_Abdomen
Outputs
Segmentation: 6: CT_Thorax_Abdomen segmentation
Affichage 3D
Cancel
Slicer starts the inference
Advanced
Local segmentation server
Initializing
Segmenting
Process Started
Sonde de données
S
P
L
I
S: -188.5000mm
A: 169.2539mm
L: -6.7461mm
B: 6: CT_Thorax_Abdomen


Fichier Éditer Vue Aide
Modules : MONAI Auto3DSeg
3D Slicer
Aide et Remerciements
Inputs
Remote processing:
Segmentation model: Whole body
Full text
Whole body segmentation TS1
Whole body segmentation TS1 - quick
Whole body segmentation TS2
Whole body segmentation TS2 - quick
Input volume: 6: CT_Thorax_Abdomen
Outputs
Segmentation: 6: CT_Thorax_Abdomen segmentation
Affichage 3D
Apply
Advanced
Local segmentation server
Preprocessing: 0.52 seconds
Inference: 15.95 seconds
Logits: 0.83 seconds
Preds: 1.67 seconds
Convert to array: 0.04 seconds
Save: 0.72 seconds
ALL DONE, result saved in /tmp/Slicer-/__SlicerTemp__2026-02-19_13+42+21.335/output-segmentation.nrrd
Importing Results
Processing finished.
Sonde de données
Slicer displays the result of the AI-based segmentation
using the Whole Body Segmentation TS1- quick
S: -188.5000mm
B: 6: CT_Thorax_Abdomen
A: 169.2539mm
L: -6.7461mm

Acknowledgements