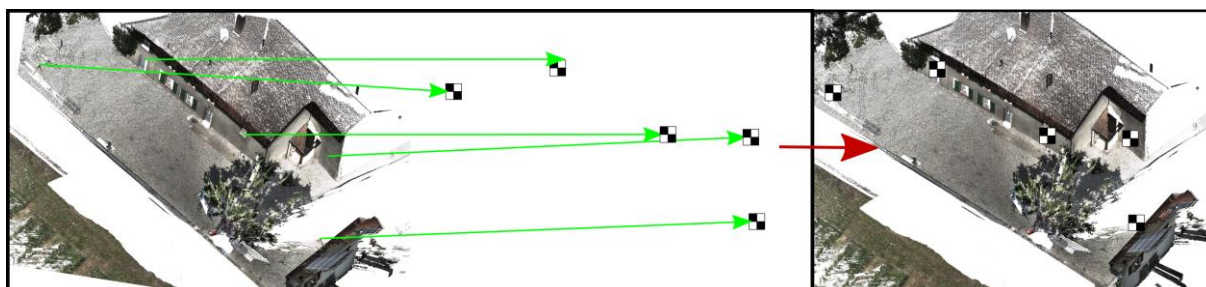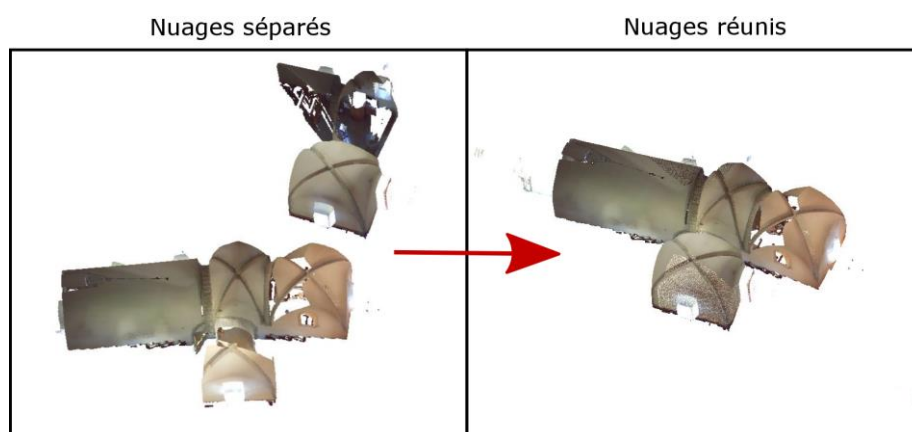# DES NUAGES 3D ET DES IMAGES VERS UNE MAQUETTE NUMÉRIQUE

## ANNEXE 2 – RÉSULTAT DES CALCULS



Diplômant : Della Casa Bruno

Professeur responsable : Barras Vincent

Expert : Brahier Julien

Mandant : Bureau d'études ROSSIER SA, Maurer Nicolas

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# TABLE DES MATIERES

# TABLE DES ILLUSATION

# 1. INTRODUCTION

Cette annexe contient les résultats des calculs de référencement et d'aérotriangulation. Chaque résultat sera accompagné d'un commentaire explicatif.

# 2. SCANNER

## 2.1. NUAGE SUR NUAGE

| Constraint ID | ScanWorld | ScanWorld | Type | Status | Weight | Error | Error Vector | Group Error | Group Error Vector | Group |
|---|---|---|---|---|---|---|---|---|---|---|
| Cloud/Mes... | ST8001 | P40_2: SW-00... | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.008 m] | 0.000 m | aligned [0.008 m] | Group 1 |
| Cloud/Mes... | P40_1: SW-00... | P40_2: SW-00... | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.023 m] | 0.002 m | aligned [0.023 m] | Group 1 |

Figure 1 Résultat du nuage-nuage des 2 scans extérieurs du P40

| Constraint ID | ScanWorld | ScanWorld | Type | Status | Weight | Error | Error Vector | Group Error | Group Error Vector | Group |
|---|---|---|---|---|---|---|---|---|---|---|
| Cloud/Mes... | Ext_002 | Ext_001 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.002 m] | 0.001 m | aligned [0.002 m] | Group 1 |
| Cloud/Mes... | Int_002 | Int_001 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.001 m] | 0.000 m | aligned [0.001 m] | Group 1 |
| Cloud/Mes... | Int_003 | Int_002 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.002 m] | 0.001 m | aligned [0.002 m] | Group 1 |
| Cloud/Mes... | Int_003 | Ext_001 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.002 m] | 0.000 m | aligned [0.002 m] | Group 1 |
| Cloud/Mes... | ST8001 | Ext_001 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.001 m] | 0.000 m | aligned [0.001 m] | Group 1 |
| Cloud/Mes... | ST8001 | Int_003 | Cloud: Cloud/Mesh - Cloud... | On | 1.0000 | 0.000 m | aligned [0.001 m] | 0.000 m | aligned [0.001 m] | Group 1 |

Figure 2 Résultat du nuage-nuage des scans Faro

## 2.2. NUAGE SUR CIBLE

| Constraint ID | ScanWorld | ScanWorld | Type | Status | Weight | Error | Error Vector | Group Error | Group Error Vector | Group |
|---|---|---|---|---|---|---|---|---|---|---|
| 8001 | P40_1: SW-00... | P40_2: SW-00... | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.001, 0.000, -0.001) m | n/a | n/a | Ungrouped |
| 8001 | P40_1: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, -0.001, 0.000) m | n/a | n/a | Ungrouped |
| d2 | P40_1: SW-00... | P40_2: SW-00... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, 0.000, -0.001) m | n/a | n/a | Ungrouped |
| d2 | P40_1: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, 0.001, 0.001) m | n/a | n/a | Ungrouped |
| d1 | P40_1: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (-0.003, -0.001, -0.002) m | n/a | n/a | Ungrouped |
| 8002 | P40_1: SW-00... | P40_2: SW-00... | Coincident: Vertex - Vertex | On | 1.0000 | 0.003 m | (0.000, 0.000, 0.003) m | n/a | n/a | Ungrouped |
| 8002 | P40_1: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.000, 0.000, 0.002) m | n/a | n/a | Ungrouped |
| 8003 | P40_1: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.003 m | (-0.002, 0.000, -0.002) m | n/a | n/a | Ungrouped |
| d4 | P40_2: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.001, 0.000, 0.001) m | n/a | n/a | Ungrouped |
| d2 | P40_2: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.000, 0.001, 0.002) m | n/a | n/a | Ungrouped |
| 8002 | P40_2: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.000, 0.000, -0.002) m | n/a | n/a | Ungrouped |
| 8001 | P40_2: SW-00... | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.001, -0.001, 0.001) m | n/a | n/a | Ungrouped |

Figure 3 Résultat du nuage sur cibles des 2 scans P40

| Constraint ID | ScanWorld | ScanWorld | Type | Status | Weight | Error | Error Vector | Group Error | Group Error Vector | Group |
|---|---|---|---|---|---|---|---|---|---|---|
| 8001 | Ext_001 | Ext_002 | Coincident: Vertex - Vertex | On | 0.2000 | 0.074 m | (-0.053, 0.051, 0.005) m | n/a | n/a | Ungrouped |
| 8001 | Ext_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 0.2000 | 0.071 m | (-0.050, 0.049, 0.004) m | n/a | n/a | Ungrouped |
| 8001 | Ext_001 | Int_003 | Coincident: Vertex - Vertex | On | 0.2000 | 0.072 m | (-0.052, 0.049, 0.005) m | n/a | n/a | Ungrouped |
| d2 | Ext_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (-0.004, 0.001, 0.000) m | n/a | n/a | Ungrouped |
| d2 | Ext_001 | Ext_002 | Coincident: Vertex - Vertex | On | 1.0000 | 0.005 m | (-0.003, -0.004, -0.002) m | n/a | n/a | Ungrouped |
| d3 | Ext_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, -0.001, 0.002) m | n/a | n/a | Ungrouped |
| d3 | Ext_001 | Int_003 | Coincident: Vertex - Vertex | On | 1.0000 | 0.003 m | (0.002, 0.000, 0.001) m | n/a | n/a | Ungrouped |
| d4 | Ext_001 | Int_003 | Coincident: Vertex - Vertex | On | 1.0000 | 0.003 m | (0.002, -0.001, 0.000) m | n/a | n/a | Ungrouped |
| d4 | Ext_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (0.004, -0.001, -0.001) m | n/a | n/a | Ungrouped |
| d4 | Ext_001 | Int_002 | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (0.004, 0.000, -0.001) m | n/a | n/a | Ungrouped |
| 8001 | Ext_002 | Int_003 | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, -0.002, 0.000) m | n/a | n/a | Ungrouped |
| 8001 | Ext_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (0.003, -0.001, -0.002) m | n/a | n/a | Ungrouped |
| 8002 | Ext_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.004 m | (-0.002, -0.003, -0.001) m | n/a | n/a | Ungrouped |
| 8003 | Ext_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.006 m | (-0.005, -0.001, -0.001) m | n/a | n/a | Ungrouped |
| d1 | Ext_002 | coord-GCP.txt ... | Coincident: Sphere - Vertex | Off | 1.0000 | 0.085 m | (-0.037, -0.076, -0.002) m | n/a | n/a | Ungrouped |
| d2 | Ext_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.006 m | (-0.001, 0.005, 0.002) m | n/a | n/a | Ungrouped |
| d5 | Int_001 | Int_002 | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (-0.001, 0.000, 0.000) m | n/a | n/a | Ungrouped |
| d5 | Int_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.001, 0.000, 0.000) m | n/a | n/a | Ungrouped |
| d6 | Int_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.000, -0.001, -0.001) m | n/a | n/a | Ungrouped |
| d7 | Int_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, 0.002, 0.001) m | n/a | n/a | Ungrouped |
| d7 | Int_001 | Int_002 | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.000, 0.000, 0.001) m | n/a | n/a | Ungrouped |
| d8 | Int_001 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (-0.001, -0.001, -0.001) m | n/a | n/a | Ungrouped |
| d4 | Int_002 | Int_003 | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (-0.001, -0.001, 0.000) m | n/a | n/a | Ungrouped |
| d4 | Int_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.001 m | (0.000, -0.001, 0.000) m | n/a | n/a | Ungrouped |
| d5 | Int_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.003 m | (0.003, 0.000, 0.000) m | n/a | n/a | Ungrouped |
| d7 | Int_002 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.001, 0.000, 0.001) m | n/a | n/a | Ungrouped |
| 8001 | Int_003 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.002, 0.000, -0.001) m | n/a | n/a | Ungrouped |
| d3 | Int_003 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (-0.002, -0.001, 0.001) m | n/a | n/a | Ungrouped |
| d4 | Int_003 | coord-GCP.txt ... | Coincident: Vertex - Vertex | On | 1.0000 | 0.002 m | (0.002, 0.000, 0.000) m | n/a | n/a | Ungrouped |

Figure 4 Résultat du nuage sur cibles des scans Faro

# 3. PHOTOGRAMMÉTRIES

## 3.1. MicMac

Ceci est un extrait du résultat final. Le résultat complet se trouve dans le fichier excel « res-MicMac.xls ». MicMac nous donne le résidu en pixel, le nombre de points qui ont été utilisé pour calculer la position de la photo, le nombre de points multiple (nombre de points pour l'aérotriangulation vu par plusieurs photos) et le pourcentage de points de liaison utilisés.

Le résidu moyen se situe autour de 1pixel ce qui est un résultat correct vu que la sélection des points homologues se fait par pixel. Le résidu maximum est à 1.8 ce qui n'indique pas que cette photo a été mal positionnée.

Par contre, le pourcentage minimum de points pour une photo est à 2.8% pour l'image 1X9A1569. Quand on regarde ladite photo, elle paraît être au bonne endroit dans le nuage et le nombre de points utilisés est de 317 ce qui est plus que pour certaines photos.

| Residu moyen | Ecart moyen | NbPts moyen | NbPtsMul moyen | |
|---|---|---|---|---|
| 1.144542361 | 0.221171673 | 2432.553957 | 1319.94964 | |
| Le residu max est de 1.8351 sur l'image 1X9A1615.JPG | | | | |
| Le Pourcentage min est de 2.8391 sur l'image 1X9A1569.JPG | | | | |
| Le NbPts min est de 183 sur l'image 1X9A1565.JPG | | | | |
| | | | | |
| Image | Residu | PercOk | NbPts | NbPtsMul |
| 1X9A1481.JPG | 1.2334 | 92.303 | 8120 | 2675 |
| 1X9A1482.JPG | 1.2431 | 91.8916 | 8189 | 2716 |
| 1X9A1483.JPG | 1.0644 | 94.9118 | 8392 | 5258 |
| 1X9A1484.JPG | 1.0631 | 94.9941 | 8470 | 5258 |
| 1X9A1485.JPG | 0.968 | 92.6806 | 4249 | 2746 |
| 1X9A1486.JPG | 0.841 | 87.84 | 2500 | 1459 |
| 1X9A1487.JPG | 1.1168 | 94.3934 | 6635 | 4621 |
| 1X9A1488.JPG | 0.868 | 93.186 | 4388 | 2972 |
| 1X9A1489.JPG | 0.8013 | 94.4431 | 4193 | 2808 |
| 1X9A1490.JPG | 1.0691 | 95.64 | 6445 | 3519 |
| 1X9A1491.JPG | 1.1431 | 95.8938 | 7306 | 4743 |
| 1X9A1492.JPG | 1.0588 | 95.2515 | 5328 | 2492 |
| 1X9A1493.JPG | 1.1737 | 95.0918 | 5664 | 2724 |
| 1X9A1494.JPG | 1.275 | 95.4327 | 6875 | 4215 |
| 1X9A1495.JPG | 1.1801 | 94.9342 | 5547 | 2519 |
| 1X9A1496.JPG | 0.9645 | 93.632 | 4978 | 3337 |
| 1X9A1497.JPG | 0.7927 | 94.9064 | 4594 | 3025 |
| 1X9A1498.JPG | 0.7971 | 94.3888 | 4794 | 2958 |

## 3.2. Agisoft