



Muon Alignment News

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- ▶ Alignment documentation
- ▶ Proposal to collect beam-halo only for special runs
- ▶ Upcoming alignment update: endcap disks w.r.t. tracker



Many different twiki pages!

- ▶ MuonAlignment: <https://twiki.cern.ch/twiki/bin/view/CMS/MuonAlignment>
 - ▶ general introduction with a few plots from MTCC (2006)
 - ▶ fully described pre-CRUZET Millepede results (2007), CRUZET endcap disk alignments with HIP-Ntuple (2008), new hardware endcap alignment (2010)
- ▶ SWGuideAlignmentConstants: [.../SWGuideAlignmentConstants](#)
 - ▶ fully described tracker and muon alignments from TIF/MTCC era through end of CRAFT era (2006–Mar 2010)
 - ▶ overlaps with MuonAlignment but more complete
 - ▶ fully described tracker and muon MC misalignment scenarios
- ▶ AlCaScenarios: [.../AlCaScenarios](#)
 - ▶ tracker and muon misalignment scenarios (overlaps SWGuideAlignmentConstants)
- ▶ SWGuideMuonAlignment: [.../SWGuideMuonAlignment](#)
 - ▶ software tools for doing track-based alignments and making validation plots; not a place for alignment results



- ▶ Looked up tags using Pablo's hn-cms-alca e-mail and [SWGuideFrontierConditions](#) twiki page
- ▶ All in `frontier://PromptProd/CMS_COND_31X_ALIGNMENT` and GR10_E_V9 GlobalTag

Type	Latest tag name	Latest IOV
GlobalPositionRcd	GlobalAlignment_2009_v2.express	1- ∞
DTAlignmentRcd	DTAlignment_2009_v1.express	137353- ∞
CSCAlignmentRcd	CSCAlignment_2009_v2.express	1- ∞
DTAlignmentErrorRcd	DTAlignmentError_2009_v1.express	137353- ∞
CSCAlignmentErrorRcd	CSCAlignmentError_2009_v1.express	133193- ∞

- ▶ Comprehensive HW barrel alignment documentation?
- ▶ New alignment, consequences of TB-HW uncertainty on Z'
<http://indico.cern.ch/contributionDisplay.py?contribId=5&sessionId=1&confId=103403>

- ▶ Beam-halo/endcaps:

<http://indico.cern.ch/contributionDisplay.py?contribId=6&confId=94861>

<http://indico.cern.ch/contributionDisplay.py?contribId=4&confId=94196>

<https://hypernews.cern.ch/HyperNews/CMS/get/muon-alignment/533/1.html>

- ▶ Luca's validation:

<http://indico.cern.ch/subContributionDisplay.py?subContId=0&contribId=3&confId=104241>



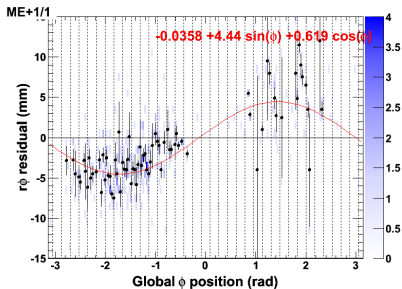
- ▶ **MuAlCalIsolatedMu**: GlobalMuons, TrackerMuons, and StandAloneMuons in collisions
- ▶ **MuAlGlobalCosmics**: barrel GlobalMuons for cosmics runs
- ▶ **MuAlBeamHaloOverlaps** and **HLT_CSCBeamHaloOverlaps***: still collecting beam-halo data for alignment
 - ▶ starting to limit bandwidth for physics
 - ▶ we seem to only need to align once after a shut-down
 - ▶ most useful when we request a beam-halo burst from the LHC, anyway

Proposal

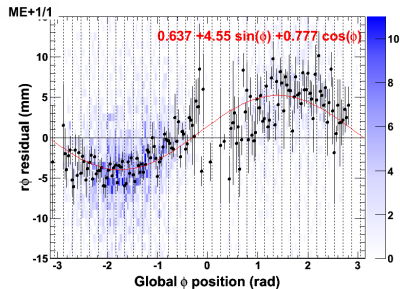
- ▶ Drop beam-halo AlCaReco and associated trigger from normal data-taking stream
- ▶ Only request special beam-halo runs after a shut-down and every few months

- ▶ With the removal of the RPC bias, we should now be able to release p_T constraints in track-based alignment
- ▶ Need to do that carefully, checking new results against old ones
- ▶ Very promising updates in endcap: low-momentum residuals have a believable shape and are roughly consistent with high-momentum
- ▶ Further improvements possible with collisions muons (under study)

with $p_T > 100$ GeV/c (current)



with $p_T > 10$ GeV/c





Muon Alignment

chaired by Gervasio Gomez (Instituto de Fisica de Cantabria) , Jim Pivarski (Texas A&M University)

Friday 03 September 2010 from 15:00 to 19:30 (Europe/Zurich)
at EVO

Manage ▾

Material

[previous meeting](#)



Friday 03 September 2010

15:00 - 16:30 Common session

15:00 **News** 05'

Speaker: Jim Pivarski (Texas A&M University)

15:05 **Brief alignment constants summary** 10'

Speaker: Luca Scodellaro

15:15 **Link status and plans** 15'

Speakers: Celso Martinez Rivero (IFCA (CSIC-UC)) , Javier Gonzalez Sanchez (Instituto de Fisica de Cantabria, Grupo de Altas Energias)

15:30 **Transfer line reconstruction (progress!)** 20'

Speaker: James Bellinger (Wisconsin)

15:50 **Status of TB alignment using SA muons** 20'

Speaker: Luca Scodellaro

16:30 - 18:00 Track-based details

16:30 **Study of global muon residuals I** 20'

Speaker: Pablo Martinez Ruiz Del Arbol

16:50 **Study of global muon residuals II** 20'

Speaker: Jim Pivarski (Texas A&M University)