

SGSO Software call - 08/05/2019

Joint software & simulation development...

- ▶ Meeting in Heidelberg
 - <https://indico.in2p3.fr/event/18564/>
 - Start of joined development based on the HAWC software framework
 - Installation difficult
 - Defined milestones

Milestones

1. put the SW to run in **LIP/MPIK** clusters (currently in progress)
2. Perform a critical review of HAWC SW
 1. To assess if the simulation output structure is adequate
 2. Check the simulation of noise and electronics and trigger
 3. Check interface with G4
3. Adapt HAWCsim
 - Create an abstract layer to select different units (G4 simulations)
 - Implement different units in the SW and develop steering cards for these different units
4. Validate implementation at station level using stand-alone simulations
5. Perform a critical review of HAWCrec
 - Adapt to each unit
 - Build a simple reconstruction chain (including trigger)
 - Adapt/create an event display to check for problems
6. Compute the instrument response functions
7. Create/adapt/use module to compute the sensitivity

Shared (private) repository on gitlab


The screenshot shows the GitLab web interface for the 'SGSO software' group. The browser address bar displays 'gitlab.com/sgso-alliance'. The top navigation bar includes links for Projects, Groups, Activity, Milestones, and Snippets, along with a search bar and user profile icons. The left sidebar contains a navigation menu with options: Overview, Details, Activity, Contribution Analytics, Issues (2), Merge Requests (1), Kubernetes, Members, and Settings.

The main content area displays the 'SGSO software' group page. It includes the group logo, name, and ID (4709130). Below this, a description states: 'Software for the Southern Gamma-ray Survey Observatory.' The page is divided into tabs for 'Subgroups and projects', 'Shared projects', and 'Archived projects'. A search bar and a 'Last created' filter are present.

The 'Subgroups and projects' tab is active, showing a list of subgroups and projects. Each entry includes a folder icon, a letter icon, the name, a description, and statistics (folders, issues, members, and stars). The entries are:

- documentation** (Owner): A place to put documentation related to software and repository. 0 folders, 3 issues, 1 member.
- sandboxes** (Owner): Sandboxes to play around in... 2 folders, 0 issues, 1 member.
- examples**: 0 stars, 2 months ago.
- hawcsim-gui-example**: Basic example on how to use the HAWCSim graphical interface. 0 stars, 2 months ago.
- aerie-install**: Installing externals and aerie. 0 stars, 2 months ago.
- aerie**: SGSO's Aerie fork. 0 stars, 3 weeks ago.
- HAWC limited code release**: 0 stars, 2 months ago.
- aerie documentation**: 0 stars, 2 months ago.

Slack chat: #simulation channel



SouthernGamma

harm

All Threads

Channels

anr_dpg_proposal

dark_matter

extragalactic

fermi_bubbles_etc

galactic_accelerators

gemingas

general

pevatronsection

random

science_case_wg

simulations

transients

Direct Messages

Slackbot

harm (you)

Aion Viana

Aion Viana, harding, Ji...

fabian.schussler

fabian.schussler, syben...

henrikef

marcos

rlopez

sybenzvi

watsonjj

#simulations

☆ | 27 | 0 | Add a topic

Tuesday, April 16th

Search

@ ☆ ⋮

harm 9:39 AM

okay it is merged back into the master. You need to compile GEANT4 with the

```
[package geant4]
cmakeOptions = -DGEANT4_USE_OPENGL_X11=ON -DGEANT4_USE_RAYTRACER_X11=ON
```

in the install script (<https://gitlab.com/sgso-alliance/aerie-install/blob/master/install.sh>)


any objections if I make that default?

The modification to CMakeFile.txt. in <https://gitlab.com/sgso-alliance/aerie/blob/master/src/hawcsim/CMakeLists.txt> were quite sloppy (i.e. I made it work pragmatically.. but there should be a nicer more robust way of doing this) . It would be great if [@lukasnellen](#) [@sybenzvi](#) could have a look on how to improve...

GitLab

Sign in

GitLab.com



sybenzvi 3:43 PM

[@harm](#), have you tested on OS X and Linux? I'm inclined to say go right ahead in any case, but I'm curious.

harm 3:45 PM

yes. I was able to run both on OS X and Linux. Maybe [@colas](#) can comment on what his finding were..

colas 3:53 PM

I merged the CMakeLists change because it works. But it is a hack, we're reducing the functionalities. CMake was supposed to conditionally build the GUI, and the right targets depending on what is available. Now, we always build the GUI and all the possible targets, regardless of what is available. Sounds bad, but it did work on my mac (compilation + run the GUI), and kind of worked on the UMD cluster (i.e. compilation was fine, but I runtime error while running the GUI, but that's as good as I could get for any other solution anyway). And apparently compilation and GUI work for Harm on the MPIK cluster. It is not good, but it's better than what we had before, so I accepted the MR. But it is not a proper solution. (edited)

lukasnellen 3:54 PM

I'll have a look at the cmake. Could you make it an issue on gitlab and assign to me?

1 reply 21 days ago

+ | Message #simulations

@ 😊

Recent code development

SGSO software > aerie > Repository

You pushed to **bigger-detector** 7 minutes ago

Create merge request

master

aerie / src / hawcsim / include / hawcsim /

+ ▾

History

Find file

Web IDE

🔗 ▾



small changes to facilitate the merge request
Harm Schoorlemmer authored 1 day ago



fb603f7b



Name

Last commit

Last update

..

new abstract class

Significantly reduced

•
•
•

Tank.hh

Merge branch 'addDLWCD' into HEAD

1 day ago

TankArray.hh

PMTs can only be declared once (don't exactly und...

2 days ago

TankDLWCD.hh

small changes to facilitate the merge request

1 day ago

TankHAWC300.hh

PMTs can only be declared once (don't exactly und...

2 days ago

TankHAWCOR.hh

PMTs can only be declared once (don't exactly und...

2 days ago

implementation of different designs

Recent code development

```
class Tank
{
public:
    Tank();

    virtual ~Tank() {};
    //Abstract function that needs to be implemented
    // by derived classes
    virtual G4PVPlacement *AddTankToLogicWorld(G4LogicalVolume* LogicWorld, d

    TankType GetTankType() {
        return type_;
    }
    TankType type_;
};

bool TankArray::LoadTanks(G4LogicalVolume* logicWorld)
{
    DetectorService& detSrv = GetService<DetectorService>("det");

    DataBase &db (DataBase::GetDB() );

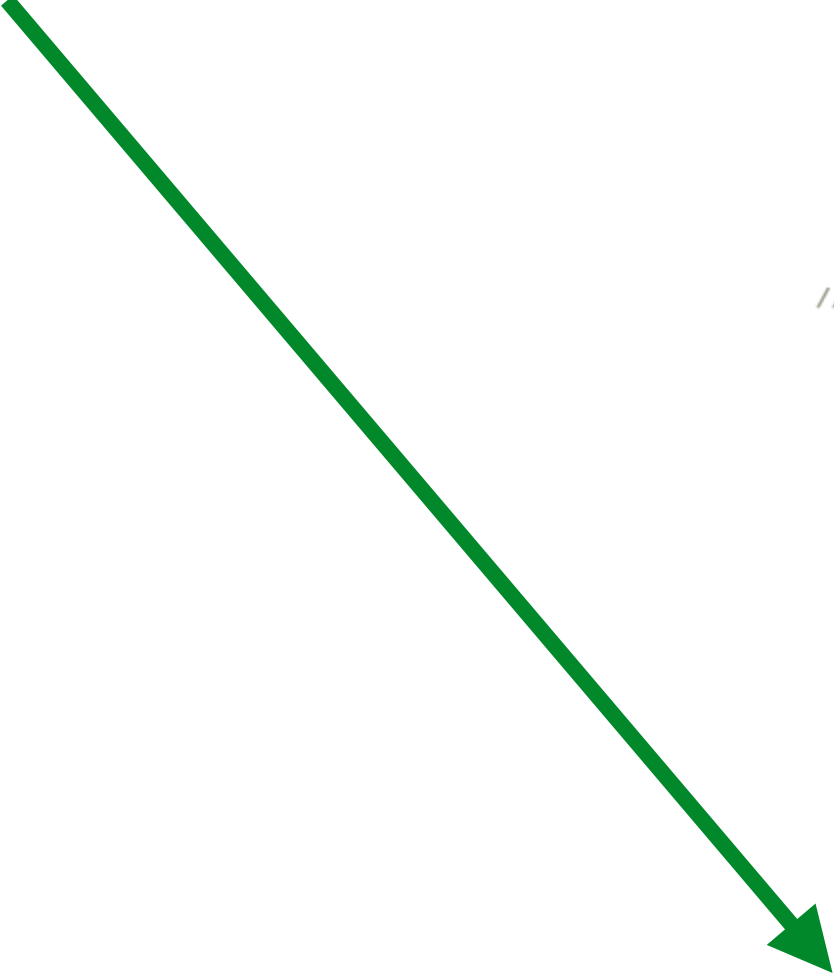
    double sGPSfrac;
    double sGPSdbl = modf(db.GetVal("GPSSeconds",&sGPSfrac);
    double nsGPSdbl = floor(sGPSfrac*pow(10.,9.));
    TimeStamp ctime( static_cast<int>(sGPSdbl),
                     static_cast<int>(nsGPSdbl) );
    det::Detector det = detSrv.GetDetector(ctime);

    //all different kind of tanks
    Tank
    *DLWCD = new TankDLWCD(),
    *NormalTank = new TankHAWC300(),
    *Outtrigger = new TankHAWCOR(),
    // *DLWCD = new TankDLWCD(),
    *Tank = NULL;

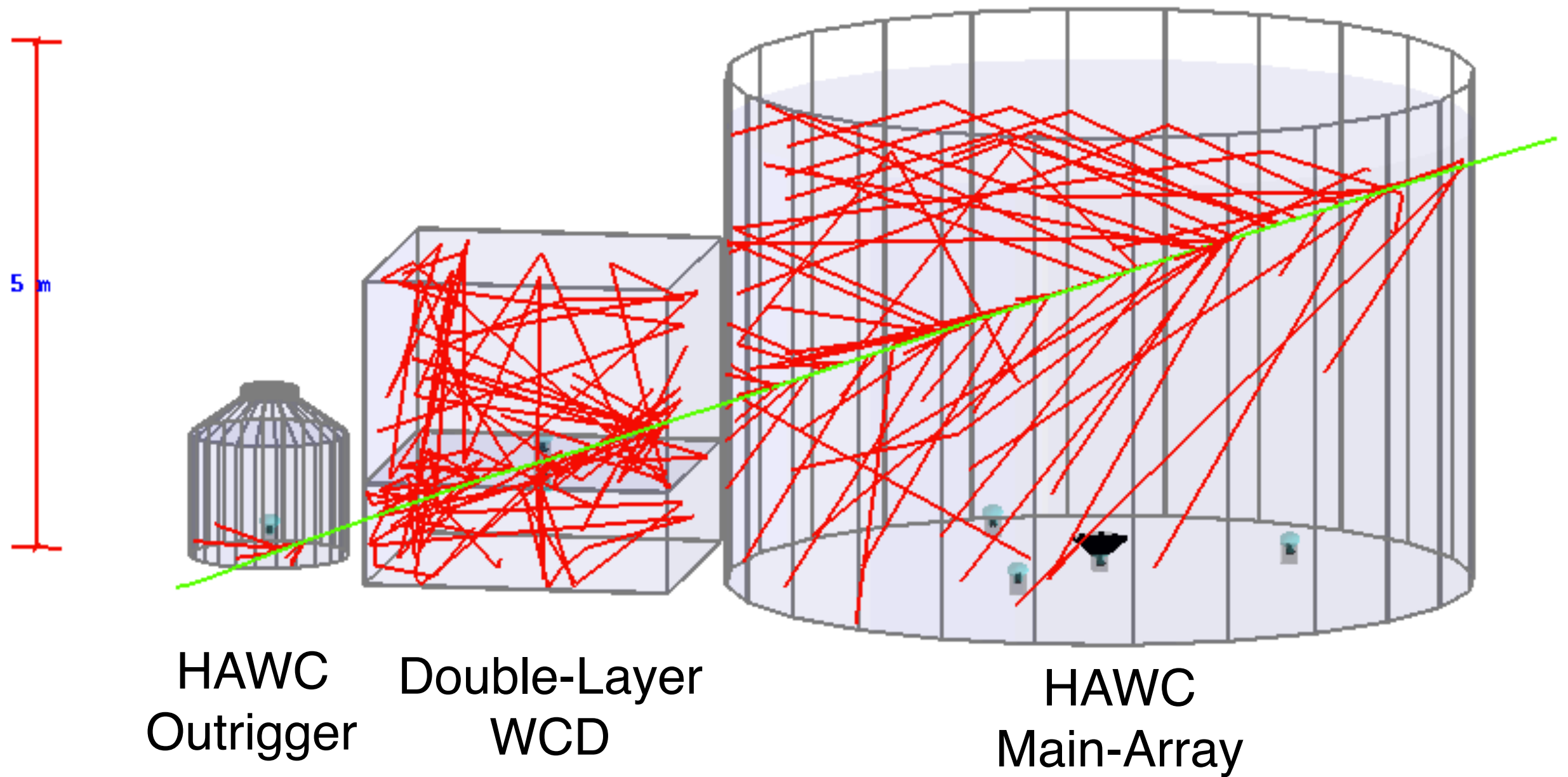
    det::Detector::TankIterator tnkItr = det.TanksBegin();
    Vector arrayCenter = det.GetArrayCenter();

    for (;tnkItr != det.TanksEnd();++tnkItr) {
        //select tank type
        int tankType = tnkItr -> GetTankType();
        if (tankType == DLTank) {
            Tank = DLWCD;
        }
        else if (tankType == OuttriggerTank) {
            Tank = Outtrigger;
        }
        else {
            Tank = NormalTank;
        }
        //add tank to logical world
        Tank->AddTankToLogicWorld(logicWorld,*tnkItr,arrayCenter,PMTVolumes,logicPMTs);
    }

    return true;
}
```




Recent code development: three amigos






Running the gui example

SGSO software > hawcsim-gui-example > Details

**hawcsim-gui-example** 
Project ID: 11144472

  Star 0  Fork 0  Clone 

 [Add license](#)  20 Commits  2 Branches  0 Tags  492 KB Files

Basic example on how to use the HAWCSim graphical interface

Forked from [hawc-observatory](#) / [sandboxes](#) / [israel](#) / [myscratch](#) / [hawcsim-gui-example](#)



Auto DevOps

It will automatically build, test, and deploy your application based on a predefined CI/CD configuration.


Learn more in the [Auto DevOps documentation](#)

Enable in settings

master  hawcsim-gui-example / + 

History  Find file Web IDE 



Merge branch 'three-amigos' into 'master' 
Harm Schoorlemmer authored 14 minutes ago

4c7e5f1b







 README

 Add CHANGELOG




 Add CONTRIBUTING



 Add Kubernetes cluster


 Set up CI/CD

Name	Last commit	Last update
 hawcsim_config	Show all three tank types and fire a muon through it.	3 hours ago
 README.md	Adapt to new install instructions.	2 months ago
 muon.in	Show all three tank types and fire a muon through it.	3 hours ago
 run_gui.sh	simple command to run gui	1 day ago




Code development: merging

 **Request to merge** sgso-alliance/sandboxes/harmscho:three-amigos  into master 






 Merged by  **Harm Schoorlemmer** 10 minutes ago Revert Cherry-pick

The changes were merged into master with [4c7e5f1b](#) 

The source branch has been deleted






 0  0 

Discussion 3 **Commits** 6 **Changes** 6 Show all activity ▾


 **Harm Schoorlemmer** @harmscho · 3 hours ago Owner    


[@israelmcmc](#) can you try this? I think might need to update to the latest version of sgso-aerie (+install procedure). Do you want to have merge rights for this project?






Let me know if this is too much work,

 **Israel Martinez** @israelmcmc · 1 hour ago Developer    

[@harmscho](#) This looks good to me but I don't have much time until July, sorry (thesis). I think I would indeed need to install the latest external and the sgso-aerie because of the DLWCD addition.

 **Harm Schoorlemmer** @harmscho merged 10 minutes ago

 **Harm Schoorlemmer** @harmscho mentioned in commit [4c7e5f1b](#) 10 minutes ago

 **Harm Schoorlemmer** @harmscho · 10 minutes ago Owner    

Alright, I tested at Mac and Cluster at MPI-K.. since it will not break anything crucial. I will merge it.

General remarks

- Update your code (installation)
- Use slack-channel to ask for help
- We need more people to make better use of merge procedure
- Many things to work on, see milestone list.