Welcome to the 3rd QGIS Conference, Developer Meeting and Workshops.
Department of Geosciences and Natural Resource Management, University of Copenhagen are hosting this event which takes place in Nødebo.

The event is parted in 3 sections:
2nd - 3rd August: Conference
4th - 6th August: Developer Meeting
7th - 10th August: Workshops

The Conference is the place where users and developers meet, share experiences and listen to presentations from a broad variety of the QGIS world.

The Developer Meeting is where developers meet face-to-face. Planning and working on the next versions of the QGIS program and plugins.

The Workshops are the place to learn new aspects of QGIS guided by experienced instructors.
# PROGRAM 2\textsuperscript{ND} AUGUST

## CONFERENCE AND SHORT WORKSHOPS

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.30</td>
<td>Registration</td>
<td></td>
</tr>
<tr>
<td>09.00</td>
<td>Welcome</td>
<td>Thomas Faergeman and Lene Fischer, University of Copenhagen</td>
</tr>
<tr>
<td>09.10</td>
<td>QSearch – An Unified QGIS Search</td>
<td>Klavs Pihlkjær Christensen, Septima</td>
</tr>
<tr>
<td>09.35</td>
<td>“Impact Analysis” plugin for QGIS</td>
<td>Bo Victor Thomsen, AestasGIS</td>
</tr>
<tr>
<td>10.00</td>
<td>Two successful Danish plugins helping people getting started with QGIS</td>
<td>Mie Winstrup, Septima and Tom Weber, SDFE</td>
</tr>
<tr>
<td>10.25</td>
<td>Short break</td>
<td></td>
</tr>
<tr>
<td>10.45</td>
<td>Registrating Urban green areas</td>
<td>Casper Bertelsen, Student at University of Copenhagen</td>
</tr>
<tr>
<td>11.10</td>
<td>Digitizing tool</td>
<td>Saber Razmjooei, Lutra Consulting</td>
</tr>
<tr>
<td>11.35</td>
<td>QGIS Web Client 2</td>
<td>Andreas Neumann, GIS-Fachstelle, Kanton Zug</td>
</tr>
<tr>
<td>12.00</td>
<td>Exploring the depths of madness through QGIS symbology</td>
<td>Nyal Dawson, NorthRoad</td>
</tr>
<tr>
<td>12.25</td>
<td>Lunch break</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Afternoon with short workshops. Please bring your own computers</td>
<td></td>
</tr>
<tr>
<td>13.10</td>
<td>- 15.40</td>
<td>Workshop 1: Site Catchment Analysis Carlo Citter, University of Siena, Dept. of History and Cultural Heritage</td>
</tr>
<tr>
<td>15.40</td>
<td>- 16.00</td>
<td>Workshop 2: The LAStools LiDAR Processing toolbox in QGIS Martin Isenburg, Rapidlasso</td>
</tr>
<tr>
<td>16.00</td>
<td>- 17.30</td>
<td>Workshop 3: Turn your GIS into Business idea Barbara Czesak and Renata Rozycka-Czas, University of Agriculture in Krakow</td>
</tr>
<tr>
<td>18.00</td>
<td>Dinner</td>
<td>Workshop 4: Registrating Urban green areas Casper Bertelsen, Student at University of Copenhagen</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2ND - 10TH AUGUST 2017

QGIS CONFERENCE, DEVELOPER MEETING AND WORKSHOPS
# PROGRAM 3<sup>rd</sup> AUGUST

## CONFERENCE

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>08.30</td>
<td>Registration</td>
<td></td>
</tr>
<tr>
<td>08.45</td>
<td>A Birth Certificate for Project QGIS4BoundarySurvey?</td>
<td>Erik Stubkjær</td>
</tr>
<tr>
<td>09.05</td>
<td>QGIS, Standardization, and Surveying and Recording of Land Parcels</td>
<td>Erik Stubkjær</td>
</tr>
<tr>
<td>09.25</td>
<td>The future of coordinate transformation in geospatial open source software</td>
<td>Kristian Evers, Danish Agency for Data Supply and Efficiency</td>
</tr>
<tr>
<td>09.45</td>
<td>QField features frenzy</td>
<td>Matthias Kuhn, OPENGIS.ch</td>
</tr>
<tr>
<td>10.05</td>
<td>Coffee break</td>
<td></td>
</tr>
<tr>
<td>10.25</td>
<td>QGIS at the core of hydraulic modeling</td>
<td>Jonas van Schrojenstein Lantman, Nelen &amp; Schuurmans</td>
</tr>
<tr>
<td>10.45</td>
<td>Sometimes open source is just plain better</td>
<td>Mie Winstrup, Septima</td>
</tr>
<tr>
<td>11.05</td>
<td>Crayfish</td>
<td>Peter Petrik, Lutra Consulting</td>
</tr>
<tr>
<td>11.25</td>
<td>QGIS 3D</td>
<td>Martin Dobias, Lutra Consulting</td>
</tr>
<tr>
<td>11.45</td>
<td>QGIS 3.0 – what end users need to know</td>
<td>Nyall Dawson, North Road</td>
</tr>
<tr>
<td>12.05</td>
<td>Lunch Break</td>
<td></td>
</tr>
<tr>
<td>12.50</td>
<td>QGIS helping the public provision of social housing by the ministry of cities in Brazil</td>
<td>Monica Balestrin Nunes &amp; Ana Paula Maciel, the National Secretariat for Housing of the Ministry of Cities</td>
</tr>
<tr>
<td>13.10</td>
<td>Land parcel delineation with QGIS plugin for drone-based cadastral mapping</td>
<td>Sophie Crommelinck, University of Twente</td>
</tr>
<tr>
<td>13.30</td>
<td>Education – Secondary Education QGIS in a classroom environment</td>
<td>Kimberly Briscoe, Abingdon School</td>
</tr>
<tr>
<td>13.50</td>
<td>Hands-on GIS skills to online students using QGIS</td>
<td>Badri Basnet, The University of Southern Queensland</td>
</tr>
<tr>
<td>14.10</td>
<td>It’s all about data</td>
<td>Lene Fischer, University of Copenhagen</td>
</tr>
<tr>
<td>14.30</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>14.50</td>
<td>InaSafe</td>
<td>Tim Sutton, Kartoza</td>
</tr>
<tr>
<td>15.10</td>
<td>Community Mapping &amp; QGIS for climate change adaptation. Case studies from five Pacific Island Countries</td>
<td>Siu I Fanga Jione, The University of the South Pacific</td>
</tr>
<tr>
<td>15.30</td>
<td>PGIS and community perception: A case study of Serua Island, Fiji</td>
<td>Siu I Fanga Jione, The University of the South Pacific</td>
</tr>
<tr>
<td>15.50</td>
<td>GIS for better governance in an African City (Senegal)</td>
<td>Abdoulaye Lath DILOF, Aix-Marseille University/Grand-Yoff Municipality</td>
</tr>
<tr>
<td>16.10</td>
<td>Field to web via QGIS</td>
<td>Marco Bernasocchi, OPENGIS.ch</td>
</tr>
<tr>
<td>16.30</td>
<td>“Townhall” meeting – meet the developers</td>
<td></td>
</tr>
<tr>
<td>18.00</td>
<td>Dinner</td>
<td></td>
</tr>
</tbody>
</table>
PROGRAM 4TH - 10TH AUGUST

DEVELOPER MEETING

Friday 4th August - Sunday 6th August. Developer meeting / Hackfest. The developers work, talk and plan the next version of QGIS.

SPONSORS

WORKSHOPS

Monday 7th August 08:00-12:00  QGIS Expressions. Andreas Neumann, GIS-Fachstelle, Kanton Zug
Monday 7th August 12:30-18:00  Introduction to QGIS Plugin development in Python using PyQGIS. Luigi Pirelli
Tuesday 8th August 08:00-12:00  Introduction to QGIS server. Alessandro Pasotti
Tuesday 8th August 13:00-17:00  QGIS Server and Web Client. Andreas Neumann, GIS-Fachstelle, Kanton Zug
Tuesday 8th August 08:00-12:00  QField. Marco Bernasocchi, OPENGIS.ch
Tuesday 8th August 08:00-12:00  LAStools LiDAR Processing toolbox in QGIS. Martin Isenburg
Tuesday 8th August 13:00-17:00  UAS Data Using areial photos from UAS. Lene Fischer
Wednesday 9th August 08:30-15:30  Best practice QGIS cartography. Nyall Dawson
Thursday 10th August 08:30-15:30  Data Visualization & Cartography in QGIS. Kurt Menke
QSearch – a unified QGIS search – Klavs Pihlkjær Christensen, Septima

Presentation max 250 words: We believe that a single search field could be an important addition to QGIS which could enhance user experience and support the daily work of many QGIS-user around the world.

Imagine having one central and unified search field in QGIS from which you can type ‘School’ and the returned results would contain layers with schools in your PostgreSQL-database, bookmarks that have schools in their name, and school-districts from external WMS/WFS-service.

We are thrilled by the idea of such a unified QGIS search field and have developed a prototype. At current state our search field is able to search in external data services, internal PostgreSQL-databases, and through bookmarks and services displayed by plugins.

In this presentation I want to demonstrate our current progress and explain our thoughts of the search field.

“Impact Analysis” plugin for QGIS – Bo Victor Thomsen, AestasGIS

“Impact Analysis” is a QGIS based plugin, which enables the user to execute multiple overlap analyses for a user defined search object on a large number of SQL-based layers.

The layers is organised in predefined “profiles”, each containing a large number of layers. The layers has to be based on a SQL datasource like PostgreSQL/PostGIS, MS-SQLServer, Oracle, Spatialite ao. Plugin options is contained in an SQL datasource as well.

The search object can be defined using a number of different methods:
Draw point, line, polygon; use a QGIS selection or use previous defined search object. The result of the impact analysis is presented using an easily understood dialog with functions to create maps, datalists, links and data export to external programs.

The plugin is used daily in the Municipality of Frederikssund, Denmark, using several different profiles - some of them containing up to 200 layers. The presentation will demonstrate all of the plugin-functions

Two successful Danish plugins helping people getting started with QGIS – Mie Winstrup, Septima and Tom Weber, Danish Agency for Data Supply and Efficiency

QGIS is getting very popular in Denmark and one of the many reasons of its popularity in Denmark are two plugins which make it easy to use Danish data in QGIS. With these plugins, it’s easy for first-time QGIS-users to get started by adding a variety of data to QGIS and search for addresses and placenames.

The first plugin, Kortforsyningen, makes Danish data easily available in QGIS. When downloaded, a menu is added to QGIS from which you can add a variety of Danish data such as background maps, orthophotos, elevation, cadastral, road names. These are all free data (WMS, WMTS, WFS, WCS) from the Danish Agency for Data Supply and Efficiency. This agency wanted their data to be easy to use in QGIS and therefore decided to have the plugin developed. In less than a year, the plugin has been downloaded more than 6000 times.

The other plugin, GeosearchDK, allows searching for and zooming to Danish place names, addresses and municipalities. This is a plugin based on a national search service.

In this presentation the stories of the plugins will be told. We will demonstrate the plugins and show how the plugins are configured. The aim of the presentation is to inspire others to ways to make their data easily available in QGIS.
**Program Details**

**Registrating Urban green areas** – Casper Bertelsen, University of Copenhagen, *Presentation in Danish*

As a student at the Forestry and Landscape College (Urban Landscape Engineer) I was from September ‘16 until January ‘17 in an internship at the municipality of Frederikssund. My main project here was to make a system / template for their department of maintenance of green areas, which they could use for their registration of all areas relevant to their maintenance.

The result of this work is a three-part system:
- A foundation for the data being a PostGIS-database.
- A QGIS-project file that the department would use to see their registration.
- A couple of Excel files used gather amounts and costs for the individual areas.

The template is freely accessible on GitHub (https://github.com/Frederikssund/groen-registrering), yet I’m presently making some structural changes as well as optimizing it at several points, now being better using SQL (and for fun and interest).

**Digitizing tool** – Saber Razmjooei, Lutra Consulting

QGIS offers several tools for digitizing vectors. With our past works on Trace Digitizing, snap caching and the recent improvements on the Node Tool, digitizing in QGIS is now a pleasant task to do!

**QGIS Web Client 2** – Andreas Neumann, GIS-Fachstelle, Kanton Zug

QGIS Web Client 2 (QWC2) is the 2nd generation of the QGIS web client - a Web-GIS client optimized for QGIS Server. It supports the proprietary extensions of QGIS server, such as PDF printing, search, data export, legends, etc. The client is fully responsive - it works for different screen sizes, screen resolutions, on Desktop and mobile devices and can be used with mouse/keyboard or touch gestures.

Technically it is based on modern javascript frameworks: OpenLayers version 4, ReactJS and Redux, and uses components developed by Geosolutions (project MapStore2). For deployment it uses nodejs and yarn.

A demo installation of QWC2 can be found at https://services.geo.zg.ch/qwc2/ and can be downloaded from https://github.com/qgis/qwc2-demo-app - the initial development work was done by company Sourcepole in Switzerland and financed from Swiss and German authorities (Cantons and Cities). It is now open for other contributors and can be found on the official QGIS github repository. Currently, there are additional contributions from Sweden around red lining (drawing overlays).

The presentation will provide background on the development, show the existing functionality and outline future plans. It will also show how you can contribute to the project.

**Exploring the depths of madness through QGIS symbology** – Nyal Dawson, NorthRoad

Over thousands of years cartographers across the world have refined the art of map making and developed solid principles and guidelines for effective visual communication of spatial data.

In this presentation we’re going to disregard all those stuffy old guidelines and instead find out what’s possible in QGIS when we’re no longer bound by good taste. I’ll be demonstrating live all the twisted ways we can abuse QGIS’ symbology engine to create the types of maps you’d normally never dream of showing in public.

This presentation will be educational too – by showcasing the hidden power of QGIS symbology I’ll also be demonstrating some of the advanced features which make QGIS the cartographic powerhouse it is today, and giving you tips on how you can harness these capabilities within your daily map making.

Memorable art sometimes pushes the boundaries of good taste – let’s find out if this applies to cartography too!
Program Details

Site Catchment Analysis – Carlo Citter, University of Siena, Dept. of History and Cultural Heritage

This short workshop is focused on the simulation of the political jurisdiction of a historical town. Thus, in this case the site catchment coincides with the territory a given town ruled on in a given period. We propose a GIS-based modeling according to basins simulation. The evaluation is run on a cost surface containing the whole knowledge on the palaeo-environment.

The LAStools LiDAR Processing toolbox in QGIS – Martin Isenburg, Rapidlasso

Hands-on workshop that guides the attendees through a complete LiDAR processing pipeline using a small example project. We’ll cover quality checking, pre-processing, point classification, and raster and vector derivative generation and integrate / compare the extracted products with other data such as Open Street Map vectors and background layers.

The latest LAStools version bundled with data will be provided. QGIS 2.18 should be installed. Non-Windows laptops also need Wine installed.

Turn your GIS into Business idea – Barbara Czesak and Renata Rozycka-Czas, University of Agriculture in Krakow

Some ideas come to you and go unnoticed. Different constraints do not let you to stick to your idea or commercialise it. Learn to overcome the constraints, stick to your idea, develop it and learn to listen to your users needs. Put to work design thinking to make your ideas better.

Design thinking is a problem solving approach to innovation. It allows for combining the best solutions for users with what is technically possible and viable.

This Workshop will help you to pick the best ideas, profile potential customers, and create value for business idea. Check if your GIS idea may turn into a business and what should your GIS solution be like to have a value for your customers.

A Birth Certificate for Project QGIS4BoundarySurvey? – Erik Stubkjær

‘QGIS, Standardization, and Surveying and Recording of Land Parcels’ tell about a new OGC standard, InfraGML; suggest a QGIS-based system as platform for InfraGML implementation; and report on the development of the idea so far.

The purpose of this presentation is to introduce main elements of the standard and its preliminary implementation in QGIS. Core concepts include LandParcel and BoundingElements. Because the boundary is of legal nature, the standard applies a minimum of legal concepts. Also, Statement belong to core concepts: the signing of documents is an instrument of rule of law. A challenge is to structure the software to accommodate countries with different levels of rule of law. In technical terms: to provide a common software structure between the existing pro-poor Social Tenure Domain Model (STDM) and InfraGML.

Crowdsourced data collection has provided us with Wikipedia and with OpenStreetMap, and research has explored its potential for recording of boundaries. ‘[V]isible objects are indicators for (ownership) boundaries, but they do not necessarily coincide with them. Rights themselves are not observable.’ (Navratil, Frank, 2013). In fact, signed documents are also visible objects, but power relations in the local community may dilute their testimony. However, case studies performed in Kenya suggest ways of adopting informal, STDM-structured data collection into formal land administration systems (Siriba, Dalyot, 2017).

The proposer is a 76 year professor emeritus and amateur software programmer, who hereby invites entrepreneurs, professional mourners and magicians to influence this project idea.

QGIS, Standardization, and Surveying and Recording of Land Parcels – Erik Stubkjær

Vendors of survey equipment and related software are concerned that their products can interface with the spatial datasets of their customers. Therefore, they also engage in standardization activities. The Open Geospatial Consortium provides a frame for this standardization activity and their standards like GML, WMS and WFS are well-know.
A new set of encoding standards, InfraGML 1.0: Parts 0-7, are about to be released. They are based on the OGC Land and Infrastructure Conceptual Model (LandInfra) (http://www.opengeospatial.org/standards/landinfra). The scope of these standards is land and civil engineering infrastructure facilities, including road, railway, survey, and land division. Land provides the environment upon which infrastructure facilities exist. Division of land comprises administrative divisions (e.g. jurisdictions) as well as interests in land (e.g., land parcels, easements, and condominiums).

International actors like the World Bank Group (WB), the Global Land Tool Network (GLTN) and the International Federation of Surveyors (FIG) are concerned that interests in land are systematically recorded (FIG, 2014). The Global Land Tool Network (GLTN) has developed the Social Tenure Domain Model (STDM) as a pro-poor and participatory land information system. From a technical perspective, STDM is a land recordation system based on QGIS, PostgreSQL and PostGIS (https://github.com/gltn/stdm).

By implementing the above standard in a QGIS-based system, volunteers, professionals, and public bodies, e.g. local government, in countries with different ranking regarding rule of law may support one another through shared development.

The presentation will develop on this idea and present implementation status.

**The future of coordinate transformation in geospatial open source software** – Kristian Evers, Danish Agency for Data Supply and Efficiency

PROJ.4 is the de facto standard when it comes to coordinate transformation in open source software. It is what enables QGIS, GDAL, PostGIS and other popular geospatial tools to safely transform between two coordinate reference systems.

PROJ.4 excels when it comes to transforming geodetic coordinates into projected coordinates. Support for datum shifts however is quite rudimentary. To be more specific: A datum shift can be completed by a combination of two Helmert shifts (to and from a pivot datum) and by, optionally, applying a correction grid. While this is sufficient for most small scale mapping activities, it is not at all sufficient for operational geodetic use, nor for many of the rapidly emerging high accuracy geospatial applications in agriculture, construction and transportation.

To improve this situation, we have introduced a new framework: Transformation pipelines. It is a highly flexible framework that allows PROJ.4 to perform high precision geodetic coordinate transformations. This is achieved by dividing the complete transformation into a number of building blocks, that each describe an independent step of the transformation, e.g. a datum shift expressed as a Helmert transformation.

Also included in the new transformation framework is support for spatio-temporal coordinates which brings PROJ.4 into the realm of dynamic reference frames, a topic that is gaining more and more traction in the geodetic community.

This talk will present the new possibilities in PROJ.4 and highlight some of the geodetic trends that will change how we think about coordinates in the future.

**QField features frenzy** - Matthias Kuhn, OPENGIS.ch

We would like to show all the features of the upcoming QField 1.0 version including:

- Geometries digitizing
- Configurable Map Themes
- Attribute widgets
- Attribute validation
- dynamic forms
- GPS integration
- open projects from file explorer
- Global variables
- QFieldSync plugin
QGIS at the core of hydraulic modeling – Jonas van Schrojenstein Lantman, Nelen & Schuurmans

QGIS the main editing and analyzing software for hydraulic modeling for 3di (www.3di.nu).
3Di Water management is a web based application for very fast but accurate hydraulic computations on a detailed spatial scale, using modern day high resolution datasets. 3Di can be used for flood, urban water, surface water or ground water modelling. This makes it the most versatile hydraulic model in the world. It is used worldwide, and a.o. famous for the reconstruction of the escape from Alcatraz.

3DI is a web based application, users can run and analyze models online. However, for specialists it is necessary to build and analyze models offline.

We choose to use QGIS as the main editing tool for specialists. Data is stored in a spatialite database, modelers can use either SQL or one of the many geoprocessing tools of QGIS available.

After the model is built in QGIS, it is uploaded to the server via Git. Modeling results can be analyzed online, but for detailed analysis a new QGIS plugin has been written that enables users to analyze hydraulic modeling results per time step and show different results like flow, water depth and velocity, either on a network (for sewer or surface water) or on a raster (flooding). It also enables user to select a route on the network, select a time step and see the hydraulic modeling results in a profile view.

Sometimes open source is just plain better – Mie Winstrup, Septima

The malstroem Project was initiated in November 2015 by the Danish Agency for Geodata who sponsored the development of a cloudburst screening method to be carried out by Assoc. Prof. Thomas Balstrøm, University of Copenhagen. The method was implemented as models in ModelBuilder for ArcGIS Desktop 10.4. The method was primarily intended for internal use, but should also be offered municipalities and other state authorities in connection with ongoing updates of a hydrological adaptation of the national Danish DEM. To be able to distribute the method freely in August 2016 SDFE asked Septima to implement Thomas’ method based on open source technology only. Septima chose to implement the method as a python module called malstroem and to integrate it with QGIS as a processing module.

The open source version turned out to have a list of improvements compared to the original ArcGIS method. The improvements are so significant that there is currently being worked on an ArcGIS Pro plugin using malstroem.

The QGIS-processing module consists of a number of hydrology algorithms, such as identifying bluespots and fill volume at specified rain incidents. One can either chose to run one of the tools or execute all of the tools at once.

In this presentation we will present the QGIS processing module and talk about the assumptions behind the algorithms. Finally, we will show examples of how it is used.

Crayfish – Peter Petrik, Lutra Consulting

The Crayfish plugin aspires to be a time explorer for structured and unstructured mesh and vector datasets within QGIS. With Crayfish, users can load time varying mesh into QGIS. It currently supports several meteorology, hydrology and oceanography file formats.

Currently, Crayfish supports a number of file formats: NetCDF, GRIB, XMDF, XDMF, FLO-2D, Selafin files, SMS DAT and SWW. Examples of the software packages are: Weather Research and Forecasting Model (WRF), TUFLOW, AnuGA, BASEMENT, Flood Modeller 2D, HECRAS 2D, FLO-2D, TELEMAC and Hydro_AS 2D.

Crayfish also allows user to view NetCDF and GRIB files directly in QGIS. In the example below, global temperature dataset (GRIB format) can be seen in QGIS.

Crayfish loads and renders files directly rather than converting them to GIS formats before viewing. This allows users to flick quickly through the various output steps in the result files and to create animations.
PROGRAM DETAILS

QGIS 3D – Martin Dobias, Lutra Consulting

The talk discusses newly added native 3D support to QGIS 3. We will have a look at the prior art in 3D view in open source GIS, then review user facing features of the new 3D framework in QGIS and finally cover the future plans and possible extensions.

QGIS 3.0 – what end users need to know – Nyall Dawson, North Road

QGIS 3.0 is an exciting release, representing the biggest development of the software in recent years. While the bulk of the changes coming in 3.0 are either new features or “under the hood” changes, there’s also a significant number of alterations to QGIS’ interface and how it’s used.

In this presentation I’ll be explaining some of the most disruptive changes in QGIS 3.0. I won’t be exploring any new features or all the other exciting improvements which 3.0 brings, instead, I’ll focus solely on what end users need to be aware of when they make their move to QGIS 3.0.

QGIS helping the public provision of social housing by the ministry of cities in Brazil – Monika Balestrin Nunes & Ana Paula Maciel, The National Secretariat for Housing of the Ministry of Cities

This project was conceived by the National Secretariat for Housing of the Brazilian Ministry of Cities, and developed in partnership with the Federal University of Minas Gerais (UFMG) and the Federal University of ABC (UFABC) in order to provide Brazilian municipalities with a geotechnology based territorial analysis tool to enable the identification of the most suitable areas for housing developments of the “Minha Casa Minha Vida” Program.

The “Minha Casa Minha Vida” Program is a successful housing experience in Brazil, that aims to provide housing for low-income families. Since 2009, more than 3,5 million dwellings were built, throughout the role country.

Due to the extension of the Brazilian territory, there was a need to provide municipalities with a tool to verify the urban insertion of new housing projects, in order to avoid or mitigate urban sprawl without the adequate infrastructure.

The idea is to evaluate each municipality based on their own data and applying a common methodology that uses the QGIS software.

This is done by a standardized mapping of a set of variables such as urban perimeter, social housing, schools and transportation in different layers, that are then crossed, aiming to identify the most suitable areas in which to allocate the new low income housing developments to be financed by the Program.

The methodology will be offered through a distance learning course which is being tested with professionals of 50 municipalities. The resulting maps will be made public on a spatial data infrastructure platform.

Land parcel delineation with QGIS plugin for drone-based cadastral mapping – Sophie Crommelinck, University of Twente

Unmanned aerial vehicles (UAV) are evolving as an alternative tool to acquire land tenure data. UAVs can capture geospatial data at high quality and resolution in a cost-effective, transparent and flexible manner, from which visible land parcel boundaries, i.e., cadastral boundaries are delineable. This delineation is to no extent automated, even though physical objects automatically retrievable through image analysis methods mark a large portion of cadastral boundaries.

This presentation proposed (i) a workflow that automatically extracts candidate cadastral boundaries from UAV orthoimages and (ii) offers a tool for their semi-automatic processing to delineate final cadastral boundaries. The workflow consists of two state-of-the-art computer vision methods, namely gPb contour detection and SLIC superpixels.

The tool combines the two methods, offers a semi-automatic final delineation and is implemented as a publicly available QGIS plugin.
PROGRAM DETAILS

In future work, the approach could be extended with further functionalities, i.e., the support of manual delineation of non-visible boundaries and the inclusion of further data sources such as Digital Surface Models.

The tool is intended to support cadastral mapping in areas, where fit-for-purpose and responsible land administration are in place. This presentation is based on my Ph.D. research at ITC (University of Twente) that is supported by its4land, which is part of the Horizon 2020 program of the European Union.

Education – Secondary Education QGIS in a classroom environment
– Kimberly Briscoe, Abingdon School

From glaciation, flood modelling and 3D landscapes to volcanoes, earthquakes, health, wealth and social data. Follow my first exciting year as a GIS Teaching Support Coordinator in an independent school in England. Explore the challenges and benefits of using QGIS and grass in a school environment. Understand the issues surrounding openly sourced data and demonstrate the benefits of integrating GIS into secondary education.

Hands-on GIS skills to online students using QGIS – Badri Basnet, The University of Southern Queensland

Teaching concepts and principles of GIS to online students is challenging as simultaneous hands-on learning is required. Yet, providing simultaneous hands-on learning is limited by many factors including: software access, availability of learning resources, and learning effectiveness. This study was initiated to address these three limitations. The aim was to equip students with hands-on GIS skills.

After several years of unsuccessful attempts with other technologies, a more sustainable approach of using platform independent open source QGIS software was adopted. Demonstration videos, datasets, step-by-step exercises, questions and answers were developed and offered on a weekly basis in an introductory GIS course in Semester 1 & 3, 2016. The entire resource development was performed within open source Ubuntu operating system. Software use was incorporated within assessments. Students’ learning behaviours were observed and voluntary students’ survey feedbacks were collected.

Students’ feedback rate was 29% (32/115) and 51% (62/121) in Semester 1 & 3 respectively. In Semester 1, 87% of the students found learning resources effective to very effective while 6% found it adequate. In Semester 3, over 82% of the students found it effective to very effective and 13% considered adequate. Some students’ comments were: “having the QGIS available made it understanding the course work easier as you could see what is happening”, “very informative and helpful for someone like myself who had no exposure to this subject before”, “everything was considered it was really the ‘dummies guide’. Some suggested improvements were: “additional exercises on raster processing”, “concise demonstration videos”, “practical examples”.

It’s all about data – Lene Fischer, University of Copenhagen

At the University of Copenhagen, Forest and Landscape College we use GIS and GPS as tools in most courses. But learning to use GIS is not at all sexy – if it’s rehearsing CRS, manually interpolate points to contour lines or looking at attribute tables.

Imagine to be seated and digitizing and typing data most of the time – that’s not work for our students. They are future planners and administrators – not GIS specialists.

So we have made our curriculum on real cases - using real dataset. A combination of downloading free and Open data from the Danish Geodata agency and ‘harvesting’ data with smartphone, flying with UAS or simply digitizing.

We manipulate images into pointclouds, DTM/DSM and orthophoto. Setting up real projects in GIS for Planning system for urban green areas. Measuring tree heights and calculate NDVI. The topics are still increasing. The students find the topics relevant for their future work, and therefore they work hard and with enthusiasm. The presentation will be on 4 different cases.
## PROGRAM DETAILS

**InaSafe** – Tim Sutton, Kartoza

InaSAFE is free software that produces realistic natural hazard impact scenarios for better planning, preparedness and response activities. It provides a simple but rigorous way to combine data from scientists, local governments and communities to provide insights into the likely impacts of future disaster events.

**Community Mapping & QGIS for climate change adaptation**  
**Case studies from five Pacific Island Countries** – Siu I Fanga Jione, The University of the South Pacific

Anthropogenic climate change and sea level rise is the most alarming environmental issue to Pacific Island Countries (PICs). The degree and duration of climate change impacts on food, water, human health, land and culture vary. In recent years, PICs have witnessed an increase in the applications of Geographic Information System (GIS) for research and climate change adaptation at the regional and national level. The recent Participatory GIS (PGIS) framework encourages the inclusion of community members and emphasises the importance of indigenous traditional knowledge and values.

This paper presents the approach, methods and outcomes of five GIS trainings that were successfully conducted in five PIC’s: Fiji, Tuvalu, Nauru, Vanuatu and Tonga. The training was carried out using the Community Mapping & QGIS, climate and disaster risk mapping tool-kit which falls within the PGIS framework. In using this tool-kit, communities transfer their ‘cognitive maps’ to digital form to assist with planning and climate change adaptation.

**PGIS and community perception: A case study of Serua Island, Fiji** – Siu I Fanga Jione, The University of the South Pacific

Participatory GIS tools have the capability to create new knowledge about the existing environment. This study presents the case study of Serua Island, Fiji where the Community Mapping & QGIS climate and disaster risk mapping tool-kit was used to analyse perception change. Primary data was collected through questionnaires, transect walk and a focus group discussion. Members of the community indicated that the images enabled them to see how ‘small’ and ‘vulnerable’ they are.

**GIS for better governance in an African City (Senegal)** – Abdoulaye Lath DioUF, Aix-Marseille University/Grand-Yoff Municipality

GIS can be very helpful for developing countries governance by associating population to data production, use and decision making process. This is a description of key issues and steps in designing a Participatory WebGIS for Grand Yoff Municipality in Senegal.

**Field to web via QGIS** – Marco Bernasocchi, OPENGIS.ch

We would like to present a short round trip from digitizing data on the field using QField to showing them on a web map while only having a one time configuration.

The stack we’ll introduce is the following
- Data storage --->PostGIS
- Field data capture --->QField.org
- GIS analysis--->QGIS.org
- Web publishing (Lizmap, QWC2, geonode, ...)

---

**QGIS CONFERENCE, DEVELOPER MEETING AND WORKSHOPS 2nd - 10th August 2017**
PROGRAM DETAILS

QGIS Expressions – Andreas Neumann

What are QGIS expressions? Where can expressions be used:

- Selection
- Filtering
- Symbology and labeling (data-defined properties)
- Print composer
- Atlas printing
- Processing
- Field Calculator
- Forms/widgets (default values and constraints)

Overview over available QGIS expressions
Examples useful in practice QGIS expressions in combinations with geometry generators
Dynamic layouts with expressions in QGIS print composer
Writing custom expressions with Python

Introduction to QGIS Plugin development in Python using PyQGIS – Luigi Pirelli

Training to introduce in the QGIS Plugin development in Python using PyQGIS. Topics are:

- Really short introduction into python (if necessary) and Class concept
- Orienteering inside community resources for problem solving
- How to configure a Development and debug environment
- Introduction to PyQGIS, example to manage raster and vectors
- How to run processing toolbox algorithm and integrate new ones
- Anatomy of a QGIS plugin
- Write simple plugin
- Tips&Tricks to develop a plugin compatible with QGIS3 and QGIS2

Training condition: – Training duration would be of 4h – Would facilitate to do it on OSGeoLive latest version + dev tools e.g * 10.5 =&gt; QGIS 2.14 * (if available in august) 11 =&gt; QGIS 2.18 QGIS version is not critical for this training.

Training can be done also not on OSGeoLive platform leaving attenders to choose platform. In that case it’s necessary to have QGIS already installed + some dev tools. – Would speedup training a attender selection with a basic python knowledge, but it’s not strictly necessary

Introduction to QGIS Server – Alessandro Pasotti

Target audience: WEB GIS Python developers with basic understanding of OGC Web Services and web server (Apache/Nginx) configuration.

Abstract: The workshop will go through the setup and deployment of QGIS Server and the creation of simple Python plugins that will extend the core features of QGIS Server. The workshop will last about 4h
PROGRAM DETAILS

QGIS Server and Web Client – Andreas Neumann

QGIS Server:
- Notes an installing QGIS Server (on Linux)
- Requirements: X-Server, Apache and FCGI
- FCGI configuration

Preparing a QGIS Desktop project for QGIS Server:
- OWS settings in QGIS project
- Compatible layer names
- Per layer and per attribute metadata and settings

Configuring QGIS web client 2:
- Global settings
- Configuring projects/themes
- Changing styling of the web client

A cloud based QGIS Server on Linux will be provided for this workshop.

QField – Marco Bernasocchi

We would like to present a workshop on how to efficiently use QField.

- Different ways to setup your data
- How to setup a QGIS project
- How to move the data to your android device
- Explore QField features
- How to digitize with QField

An android 4.3 or newer device is required. A laptop with QGIS installed also.
A data synchronization app like dropbox or similar installed on the phone and the laptop is very useful.

Tile-based batch Processing of Photogrammetry Points with the LAStools LiDAR Processing toolbox in QGIS – Martin Isenburg, Rapidlasso

Hands-on workshop that guides the attendees through a complete tile-based multi-core point processing pipeline for photogrammetry points generated from aerial imagery (aircraft or drones) using dense-matching software. We'll cover the differences between LiDAR and photogrammetry points and the resulting difficulties in terms of ground, building, vegetation classification. We explore different options for generating reasonable terrain models and vector derivatives using one or two example projects.

The latest LAStools version bundled with data will be provided. QGIS 2.18 should be installed. Non-Windows laptops also need Wine installed.

UAS data – Lene Fischer, University of Copenhagen

Using aerial photos from UAS. We will transform data to Ortophoto and Point Cloud. Exploring the Point Cloud – and compare with Point Cloud from Lidar. Calculate NVDI, create DSM and DTM. Create Hillshade and Colorize.
Best practice QGIS cartography – Nyall Dawson, North Road

In this workshop I’ll be guiding a small group of QGIS users through an in-depth series of map-making exercises.

The workshop will collaboratively step through advanced symbology, labeling, and finally composer based outputs. I won’t be covering basic use of the program, and instead will concentrate on teaching the numerous shortcuts and advanced features which are available in QGIS for rapidly creating visually stunning maps.

While the bulk of the workshop will consist of structured exercise, a significant portion of this workshop will also be dedicated to free-form training in best practice use of QGIS for map making. If you’re an experienced QGIS user looking to take your map creation skills to the next level – this is the perfect workshop for you!

Data Visualization & Cartography in QGIS – Kurt Menke, Bird’s eye view

This workshop will be a tour of the wide range of data visualization/styling and cartographic options now available in QGIS. QGIS has seen remarkable growth in these areas in recent years. Tips and tricks will be covered as we go through the workshop. Topics will be introduced and then exercises will be given. Attendees need only have basic familiarity with QGIS.

Workshop data will be provided. Topics will include:

- Classifying data
- Adding basemaps
- A tour of the renderers and subrenderers available with use cases
- Implementing inverted polygon shapeburst fills
- Using live layer effects
- Using blending modes
- Working with elevations rasters
- Labeling options
  - Working with formatting, buffers and backgrounds
  - Configuring automatic label placement
  - Using labeling expressions
  - Data defined overrides for manual label placement & font size
- Map Composition in the Print Composer
  - Customizing legends
  - Configuring scalebars
  - Adding north arrows
  - Customizing text/titles with html
  - Inserting background images
  - Generating Atlases
- Using the 2.5D Renderer
- Using geometry generator symbol Layers
- Creating 3D views with the QGIS2ThreeJS plugin