

Análisis Espacial con SIG

Análisis y Modelado Espacial

¿Qué es un SIG?

- Sistema de Información Geográfica
- Herramienta para manejo, procesamiento, análisis y visualización de información espacial

Datos espaciales

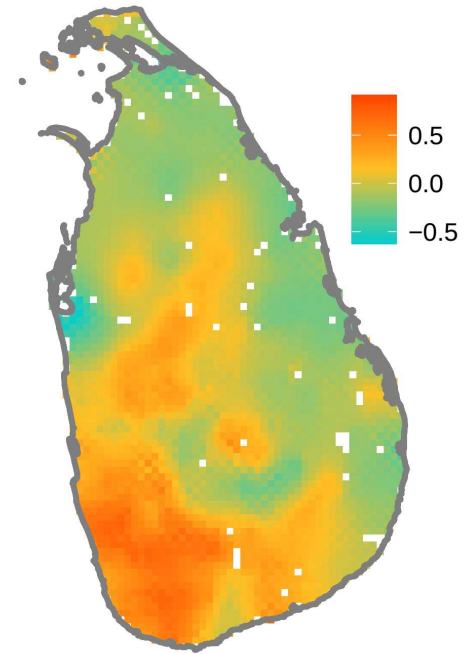
x	y	Temperatura	Cobertura
101.5	7.3	25.4	Urbano
101.24	5.33	26.9	Agricultura
100.95	3.14	28.7	Bosque
102.78	7.46	24.1	Agua
...			

Descripción cuali o cuantativa de ubicaciones geográficas

Maneras de representar datos en la geografía

Raster

- Rejilla regular
- Valores se representan con paleta de color
- Centro de píxeles representa promedio del área



Ejemplos

- Imágenes satelitales
 - Índices de vegetación



Representación de la actividad fotosintética

Ejemplos

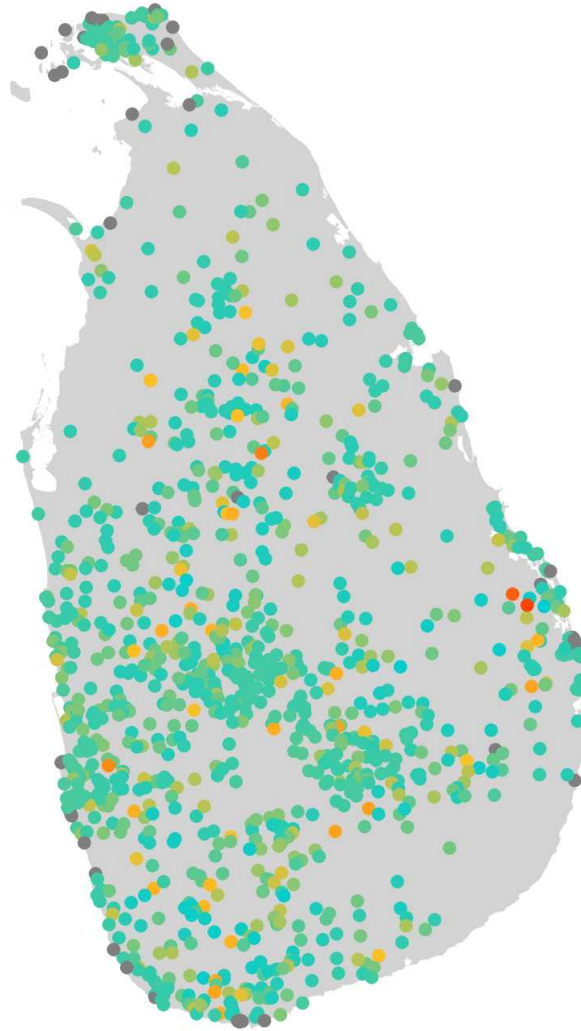
- Imágenes satelitales
 - Topografía



Mapa de sombreado topográfico, a partir de Elevación MASL

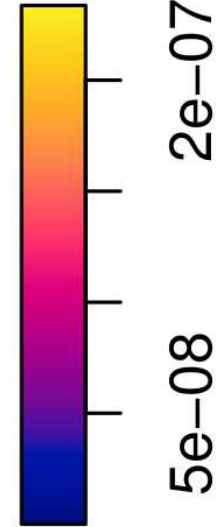
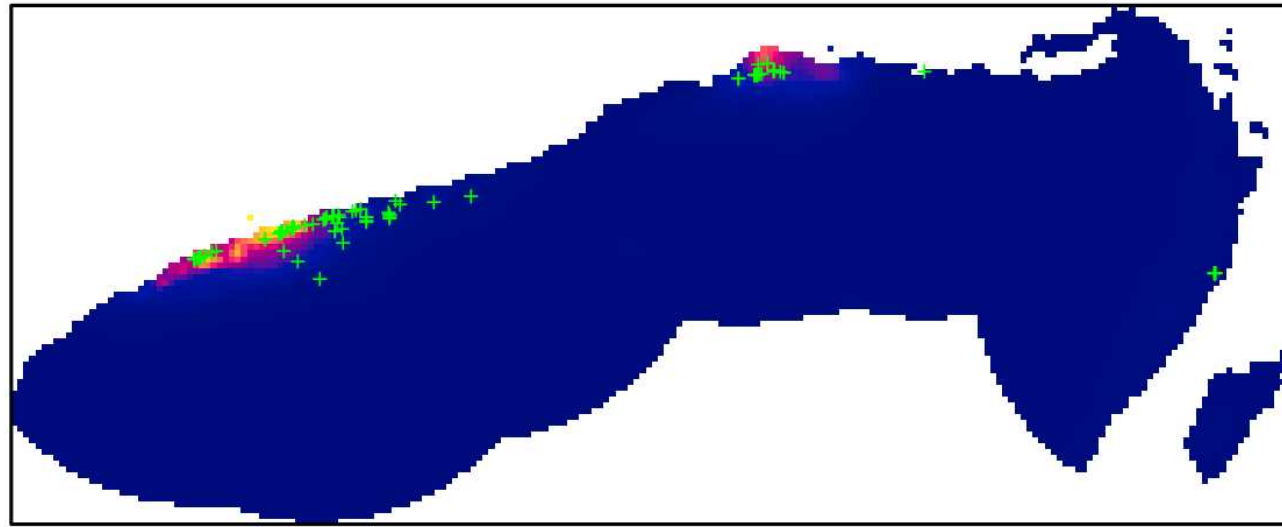
Puntos

- Conjunto de coordenadas donde se obtuvo alguna medición



Ubicaciones de poblados en Sri Lanka donde se hicieron entrevistas de estado de salud.

Color representa cantidad de accidentes ofídicos



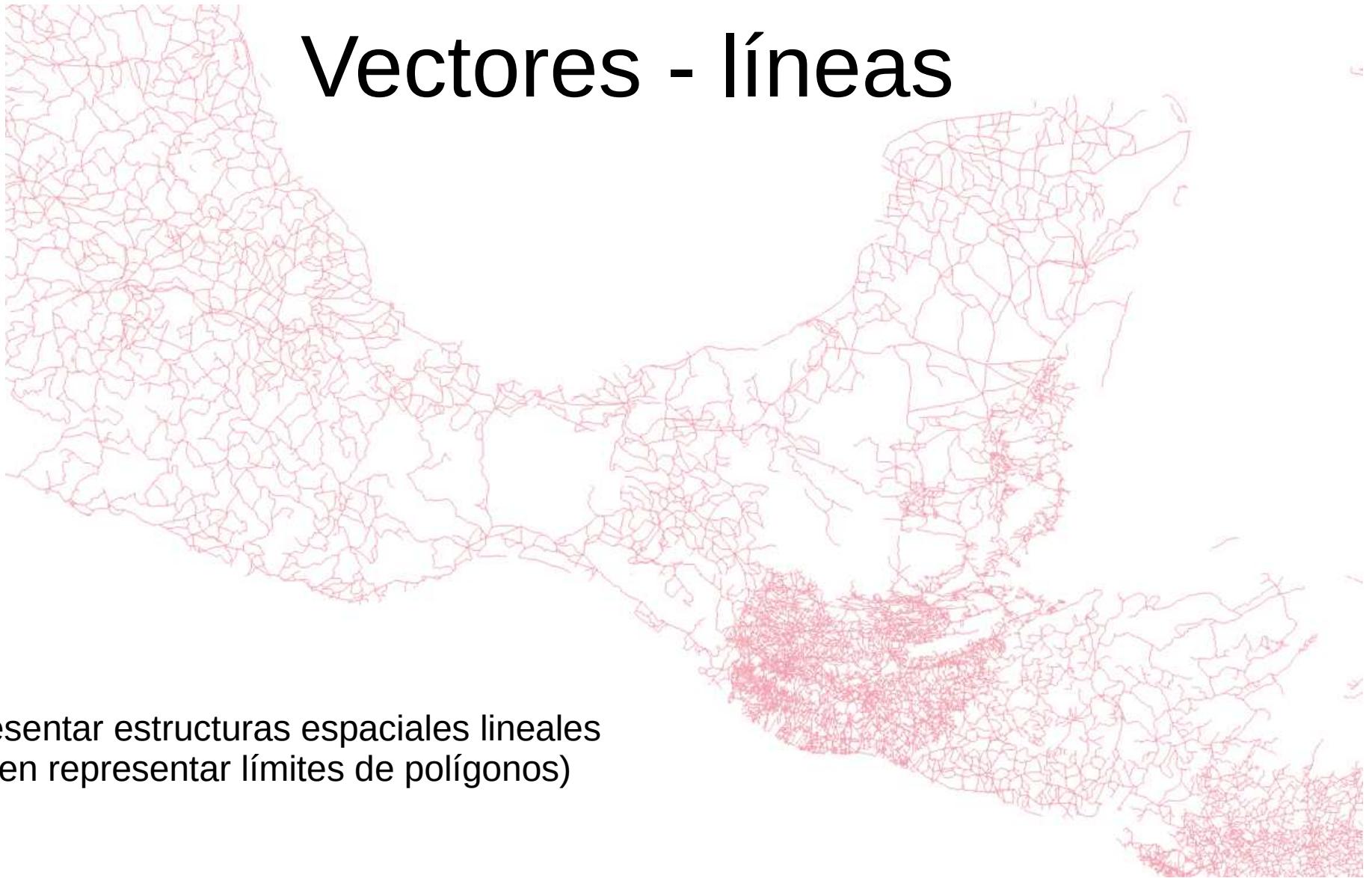
- En ENM se utilizan los puntos para estimar distribuciones geográficas

Vectoriales - polígonos



- Unidades espaciales son polígonos cerrados
- Color representa atributo cuali ó cuantitativo

Vectores - líneas



Representar estructuras espaciales lineales
(pueden representar límites de polígonos)

¿Dónde conseguir un SIG?

- QGIS
 - <https://www.qgis.org>
- R
 - <https://www.r-project.org>
 - <https://www.rstudio.org>
- Saga
 - <https://saga-gis.sourceforge.io/en/>

Guía de instalación de R



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The R Project for Statistical Computing

Getting Started

R is a free software environment for statistical computing and graphics. It compiles and runs on a wide variety of UNIX platforms, Windows and MacOS. To [download R](#), please choose your preferred [CRAN mirror](#).

If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

News

- [R version 4.2.1 \(Funny-Looking Kid\)](#) has been released on 2022-06-23.
- [R version 4.2.0 \(Vigorous Calisthenics\)](#) has been released on 2022-04-22.
- [R version 4.1.3 \(One Push-Up\)](#) was released on 2022-03-10.
- Thanks to the organisers of useR! 2020 for a successful online conference. Recorded tutorials and talks from the conference are available on the [R Consortium YouTube channel](#).
- You can support the R Foundation with a renewable subscription as a [supporting member](#)

News via Twitter

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<https://itp.harukasan.org/CRAN/>

<https://cran.yu.ac.kr/>

<https://cran.seoul.go.kr/>

<https://cran.biodisk.org/>

Malaysia

<https://mirrors.upm.edu.my/CRAN/>

Mexico

<https://cran.itam.mx/>

<https://www.est.colpos.mx/>

Morocco

<https://mirror.marwan.ma/cran/>

Netherlands

<https://mirrors.evoluso.com/CRAN/>

<https://mirror.lyrahosting.com/CRAN/>

New Zealand

<https://cran.stat.auckland.ac.nz/>

Norway

<https://cran.uib.no/>

Information and Database Systems Laboratory, Pukyong National University
Yeungnam University
Bigdata Campus, Seoul Metropolitan Government
The Genome Institute of UNIST (Ulsan National Institute of Science and

Universiti Putra Malaysia

Instituto Tecnológico Autónomo de México

Colegio de Postgraduados, Texcoco

MARWAN

Evoluso.com

Lyra Hosting

University of Auckland

University of Bergen

The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux \(Debian, Fedora/Redhat, Ubuntu\)](#)
- [Download R for macOS](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (2022-06-23, Funny-Looking Kid) [R-4.2.1.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

Subdirectories:

[base](#)

Binaries for base distribution. This is what you want to [install R for the first time](#).

[contrib](#)

Binaries of contributed CRAN packages (for R \geq 3.4.x).

[old contrib](#)

Binaries of contributed CRAN packages for outdated versions of R (for R < 3.4.x).

[Rtools](#)

Tools to build R and R packages. This is what you want to build your own packages on Windows, or to build R itself.

Please do not submit binaries to CRAN. Package developers might want to contact Uwe Ligges directly in case of questions / suggestions related to Windows binaries.

You may also want to read the [R FAQ](#) and [R for Windows FAQ](#).

Note: CRAN does some checks on these binaries for viruses, but cannot give guarantees. Use the normal precautions with downloaded executables.

RStudio is becoming Posit in October. Learn more at posit.co



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RStudio Connect is the best way to host
and share data products made with R and
Python.

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All Installers

Linux users may need to [import RStudio's public code-signing key](#) prior to installation, depending on the operating system's security policy.

RStudio requires a 64-bit operating system. If you are on a 32 bit system, you can use an [older version of RStudio](#).

OS	Download	Size	SHA-256
Windows 10/11	RStudio-2022.07.1-554.exe	190.14 MB	5ab6215b
macOS 10.15+	RStudio-2022.07.1-554.dmg	221.04 MB	7b1a2285
Ubuntu 18+/Debian 10+	rstudio-2022.07.1-554-amd64.deb	132.91 MB	74b9e751
Ubuntu 22	rstudio-2022.07.1-554-amd64.deb	145.33 MB	92f2ab75
Fedora 19/Red Hat 7	rstudio-2022.07.1-554-x86_64.rpm	103.29 MB	0fc15d16
Fedora 34/Red Hat 8	rstudio-2022.07.1-554-x86_64.rpm	149.77 MB	0c4ef334
OpenSUSE 15	rstudio-2022.07.1-554-x86_64.rpm	133.76 MB	45f277d0