

WindFlow

Proyecto Data Science Batch

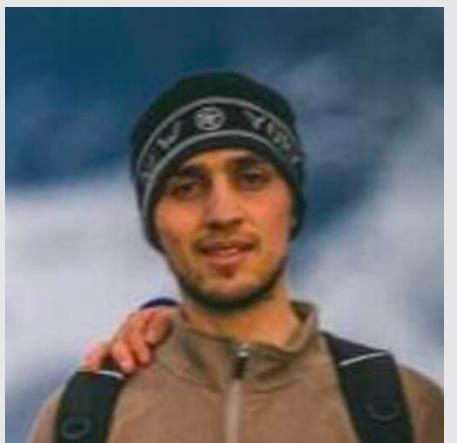
#981

MEET THE TEAM



**SEBASTIÁN
DÍAZ**

**PRODUCT
OWNER - DATA
SCIENTIST**



**JOHN
COLLINS**

**MACHINE
LEARNING
ENGINEER**



**SEBASTIÁN
 OSSUL**

**DATA
ANALYST -
SCIENTIST**



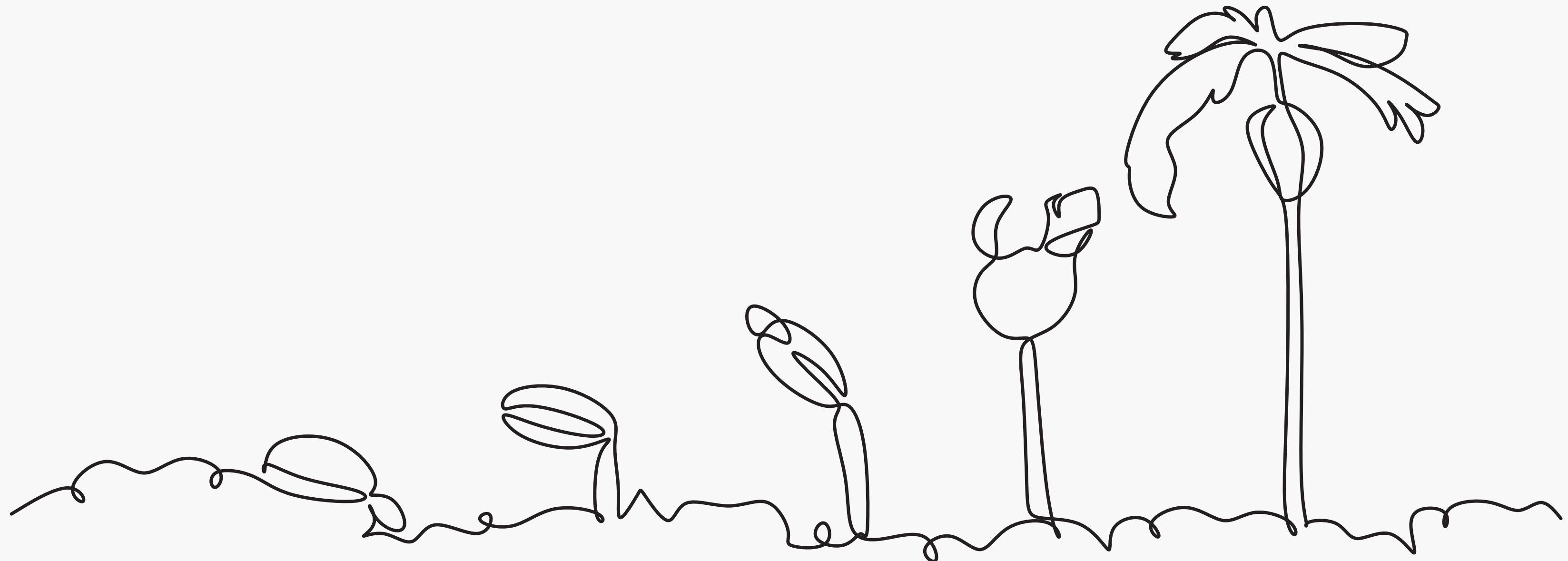
**FRANCE
POMA**

**FRONTEND
DEV**

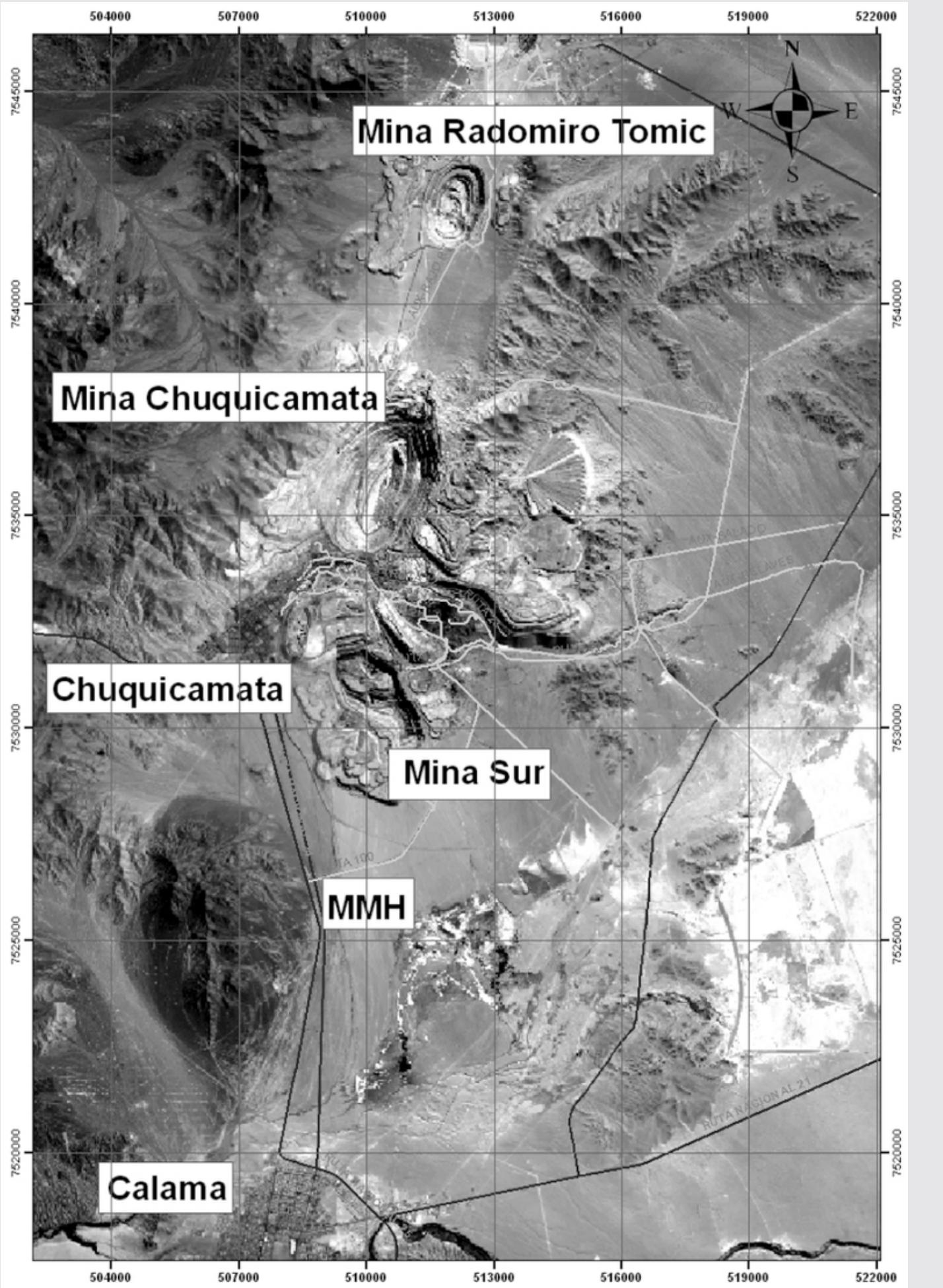


**FELIPE
ULLOA**

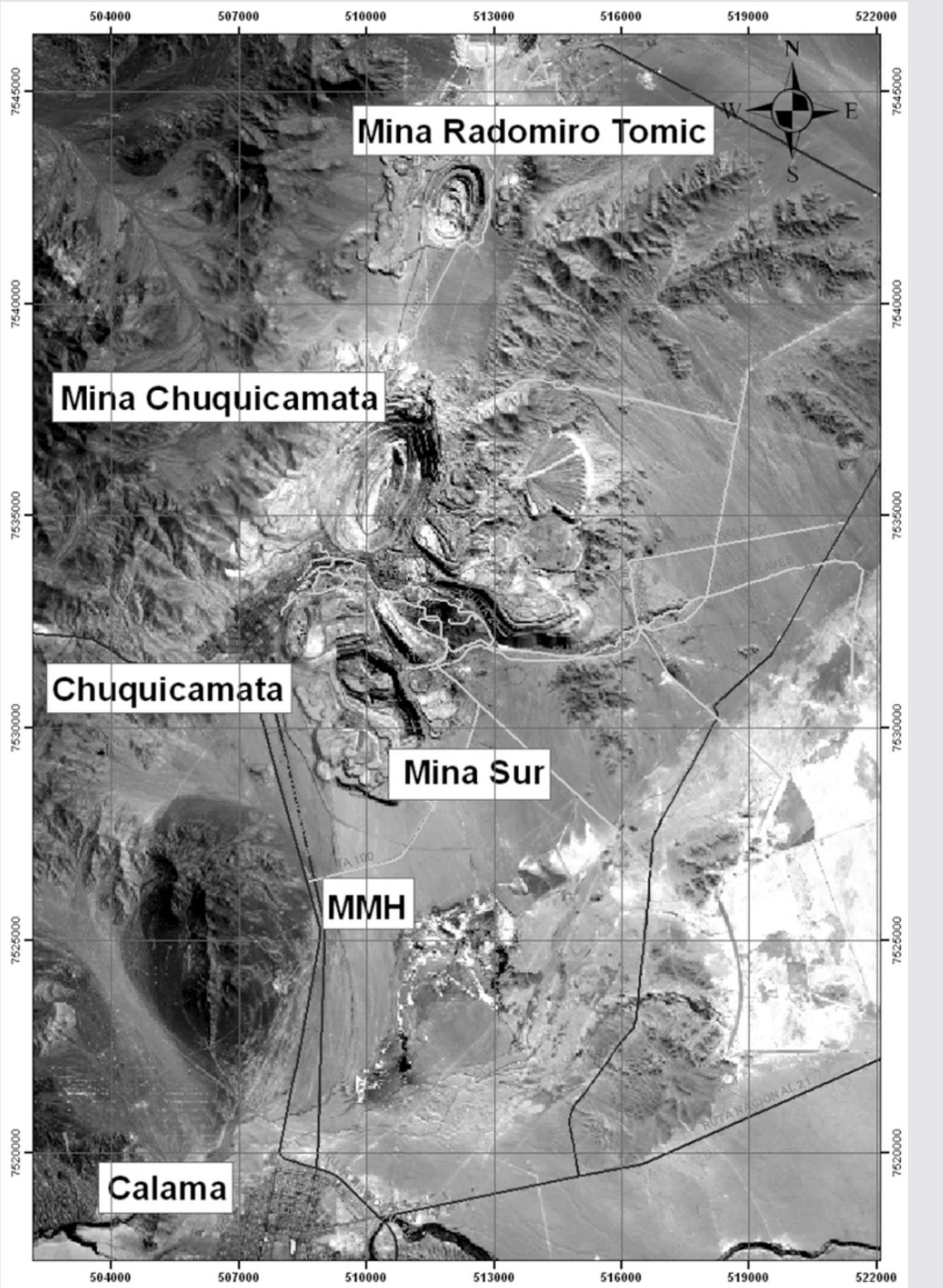
**FRONTEND
DEV - DATA
SCIENTIST**



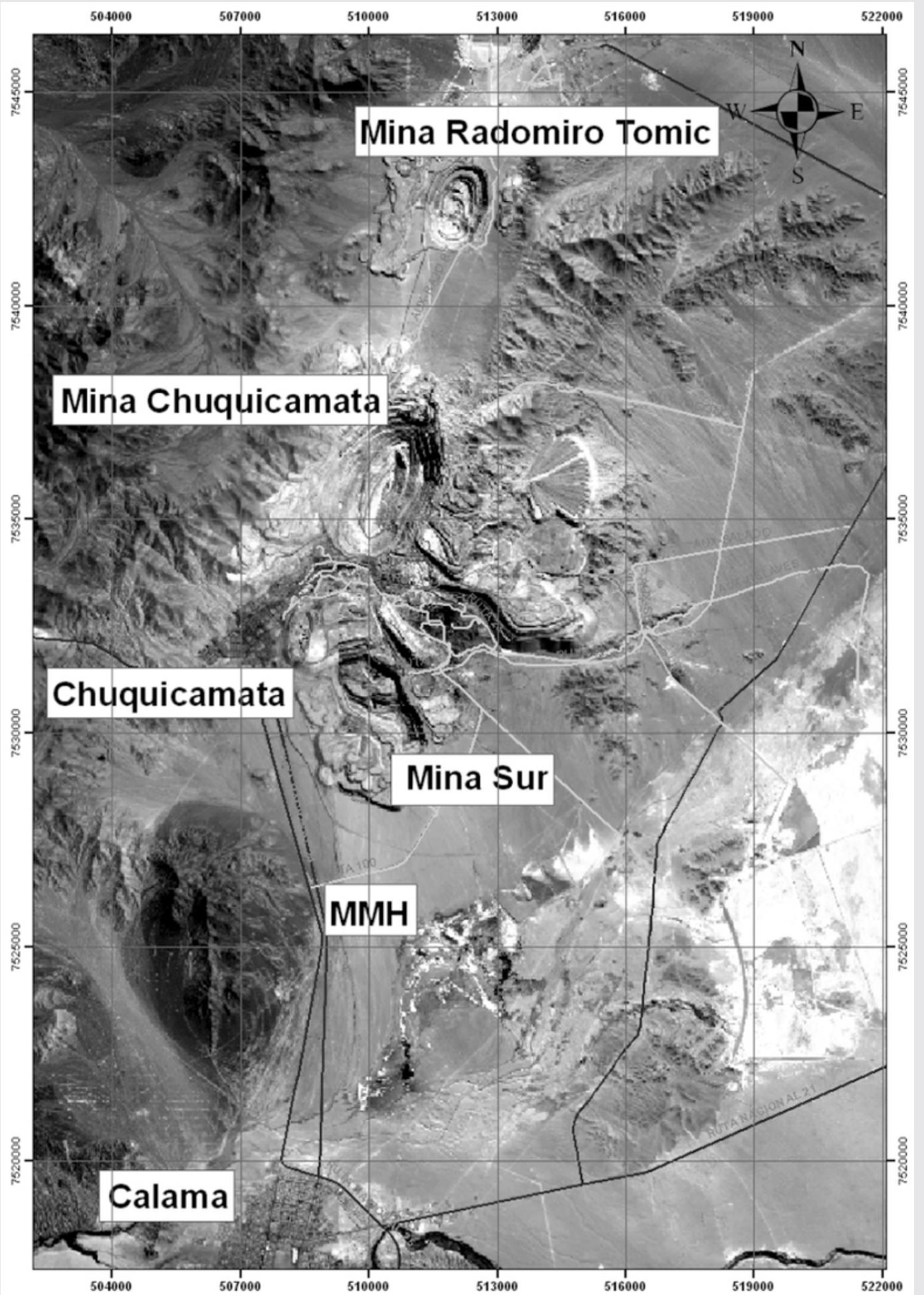
ORIGEN DEL PROBLEMA



**LA DISTANCIA
ENTRE LA MINA
CHUQUICAMATA Y
CALAMA ES SOLO
DE 18 KM**



180.283
HABITANTES



PRINCIPALES CONTAMINANTES

- EL ARSÉNICO
- DIÓXIDO DE AZUFRE
- EL MATERIAL PARTICULADO 10 (MP10)

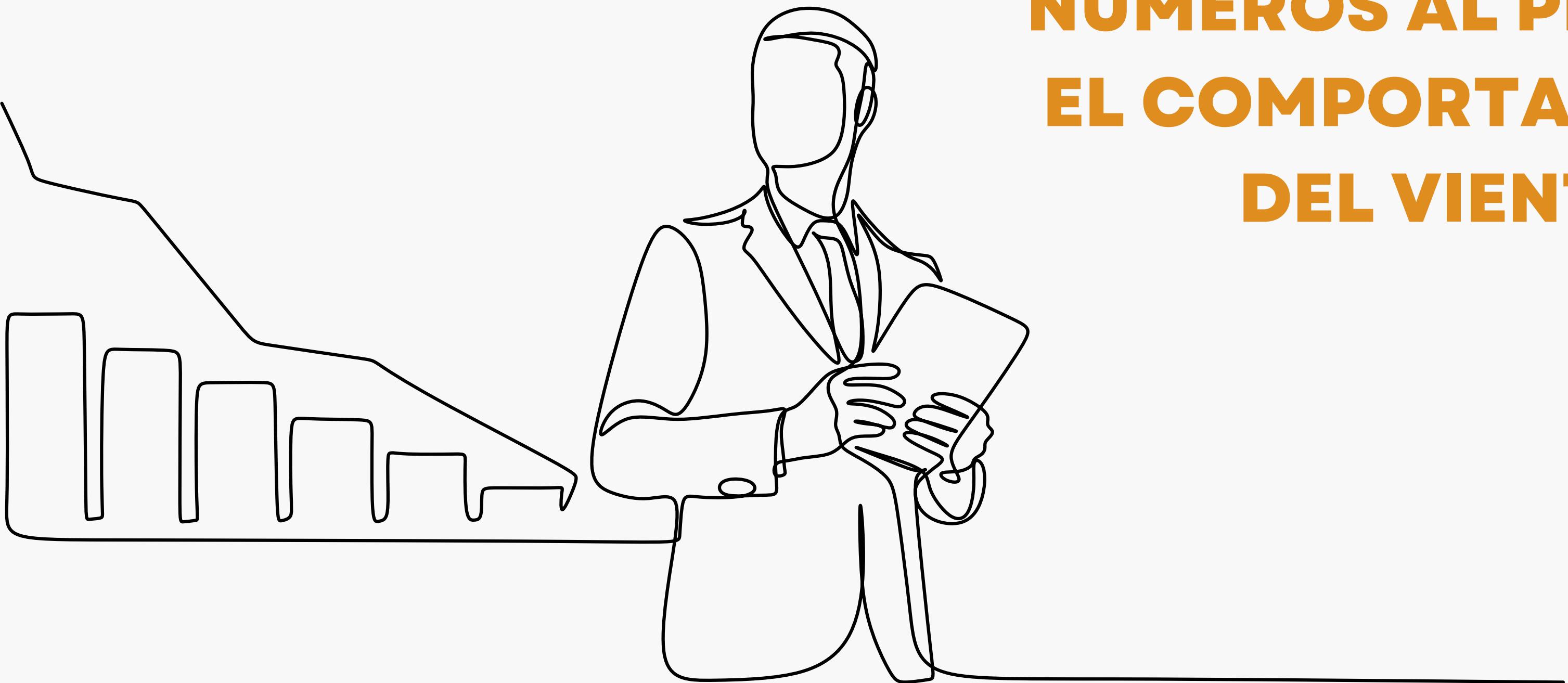
**25,4% DE LAS
DEFUNCIONES SON A
RAÍZ DE PATOLOGÍAS
RESPIRATORIAS**



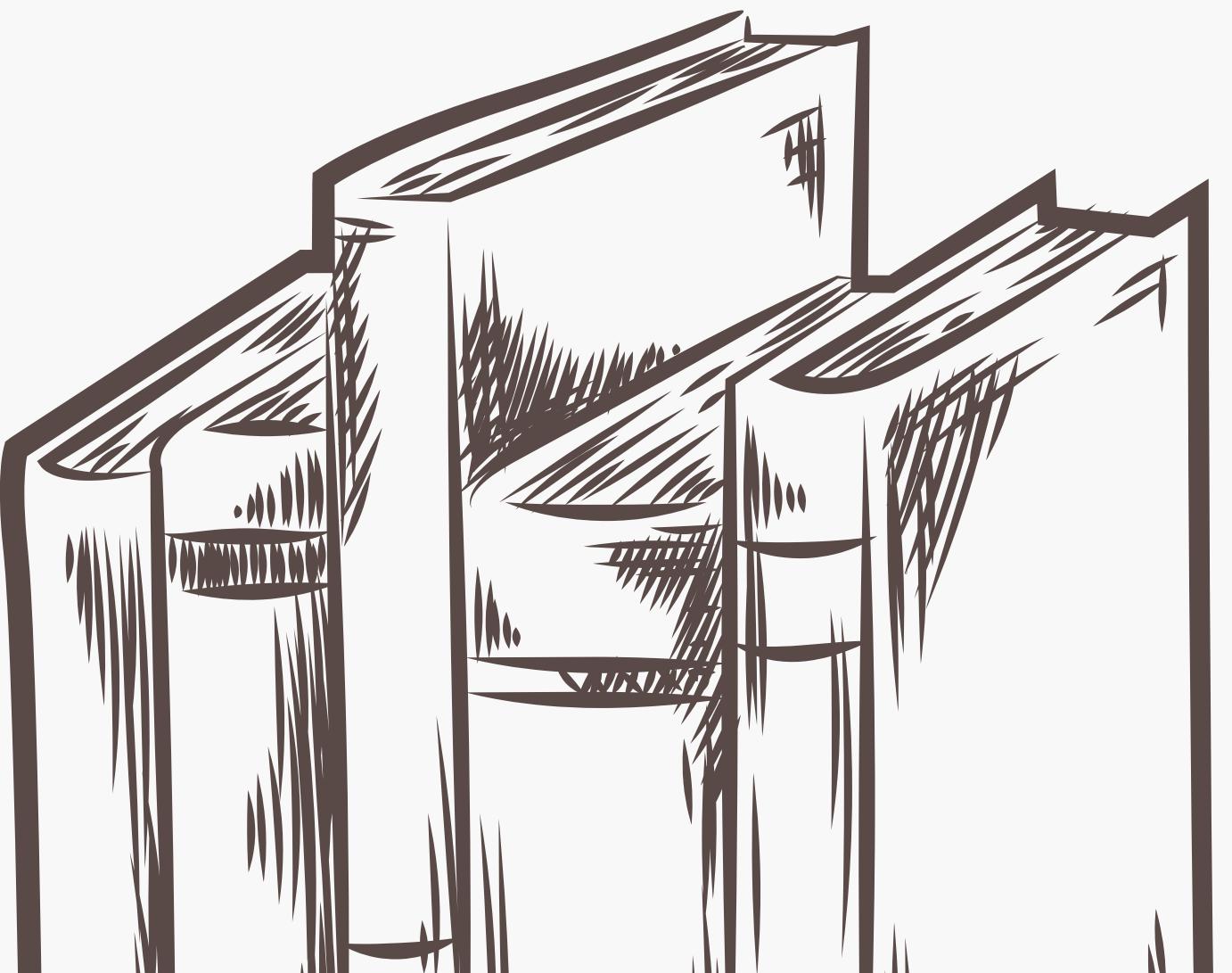
**EN INVIERNO SE
REGISTRAN 2000
CASOS DE
ENFERMEDADES
RESPIRATORIAS QUE
DERIVAN EN SECUELAS
SEVERAS O MUERTE**



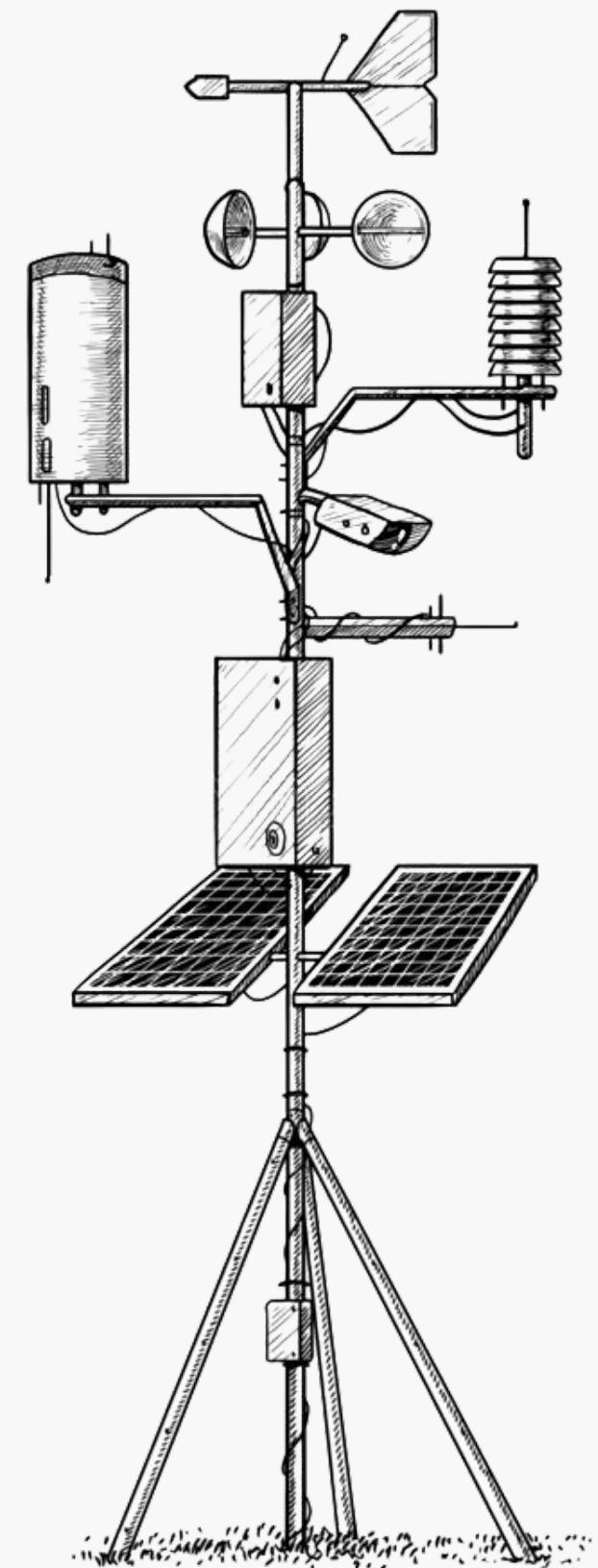
**WINDFLOW BUSCA
REDUCIR ESTOS
NÚMEROS AL PREDECIR
EL COMPORTAMIENTO
DEL VIENTO**



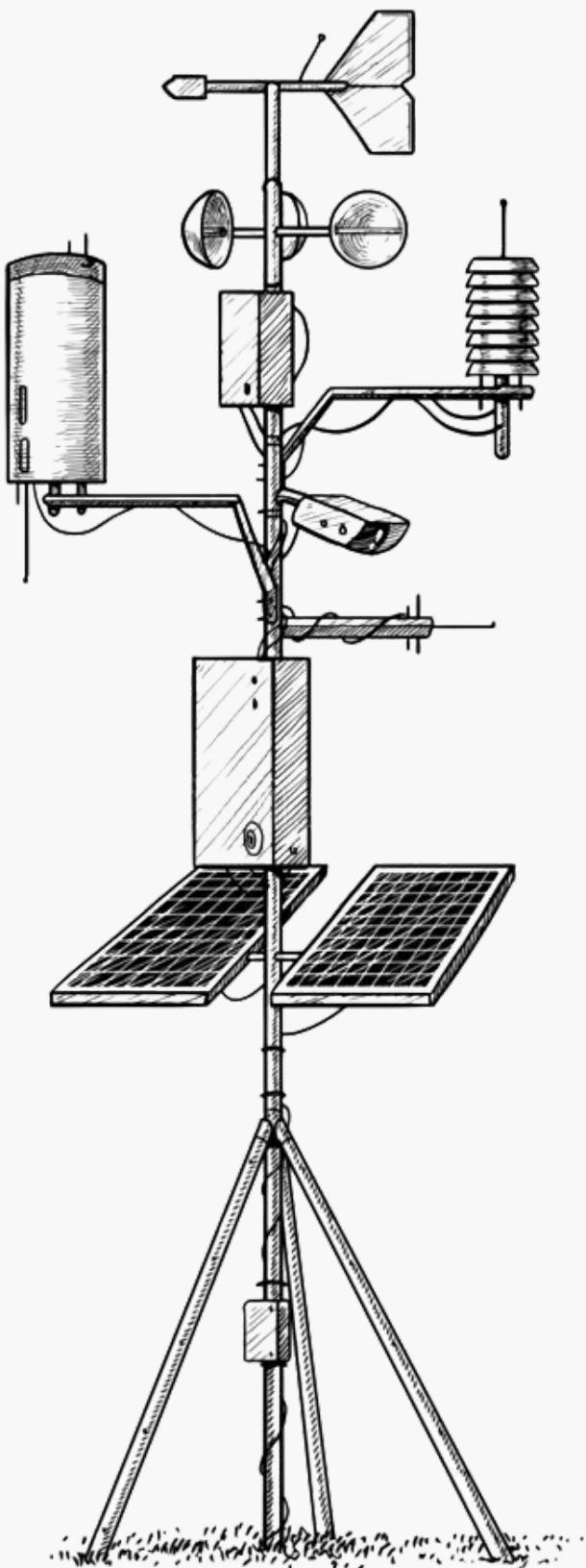
Data



**4 años de datos
meteorológicos
2017-2021 con
frecuencia
cada 5 minutos de
muestreo**

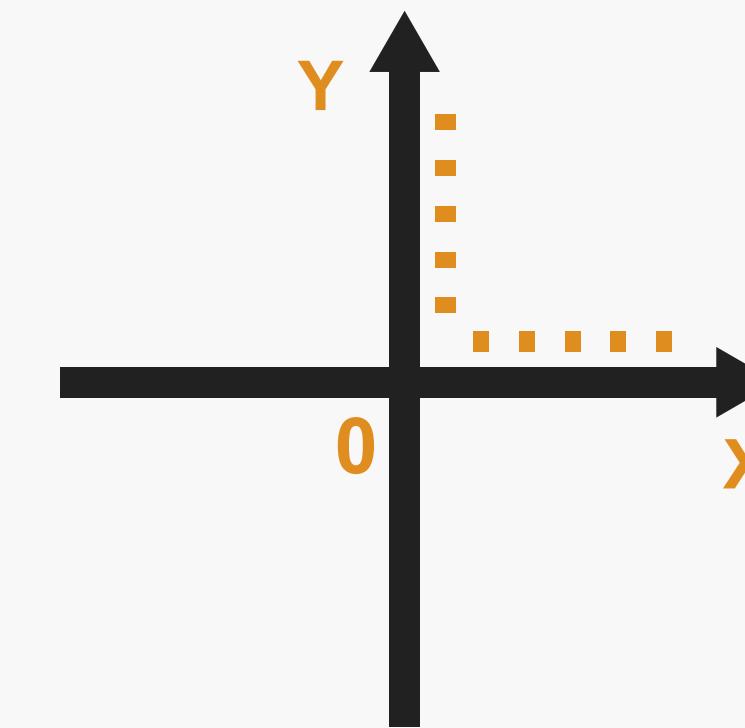
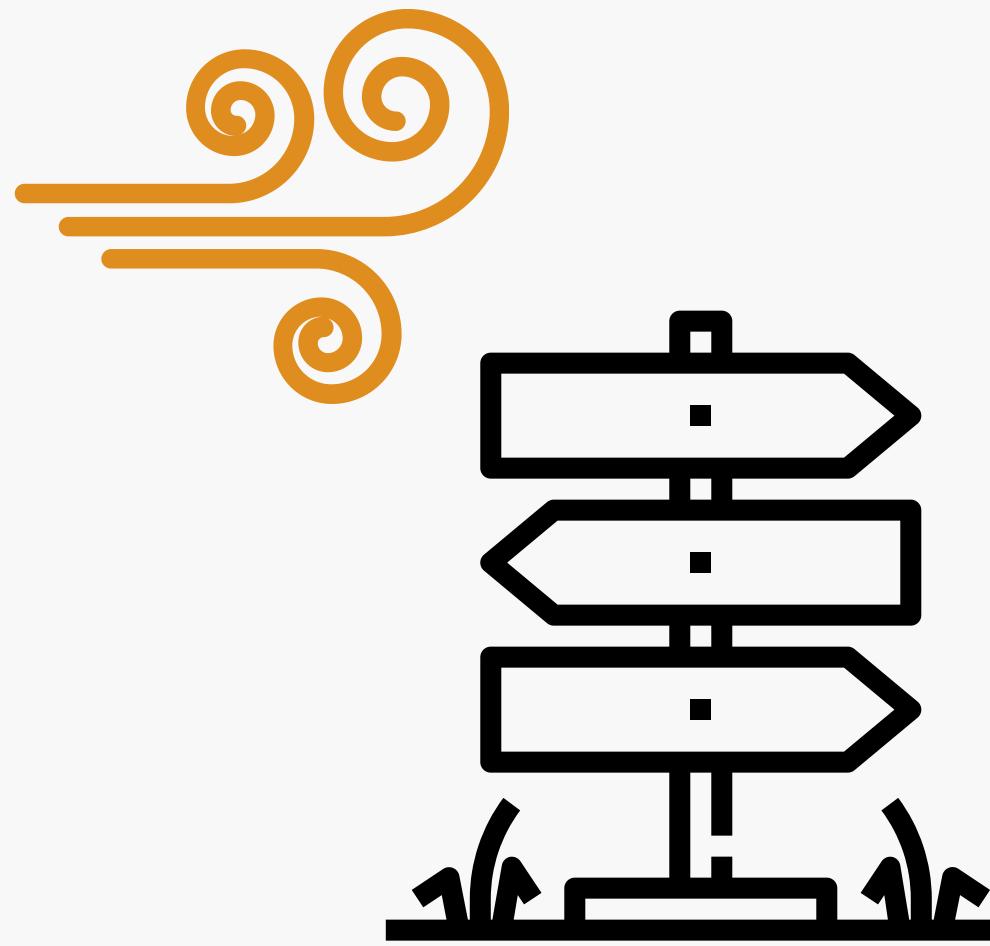


481.823
muestras



	fecha	WDIR	WSPD	STWD	SWSP	TEMP	EVAP	PRES	RHUM
0	2018-08-22 00:00:00	292.585	9.97749	4.44259	11.11000	9.80833	153.4	725.400	17.4500
1	2018-08-22 00:05:00	293.000	8.93916	5.56557	10.33000	9.60001	153.4	725.500	17.3417
2	2018-08-22 00:10:00	295.756	8.82584	5.85831	9.96001	9.67500	153.4	725.517	17.4000
3	2018-08-22 00:15:00	290.001	7.92500	4.26080	8.56000	9.60001	153.3	725.600	17.3917
4	2018-08-22 00:20:00	290.656	8.63583	6.27128	10.11000	9.64999	153.3	725.708	17.8333

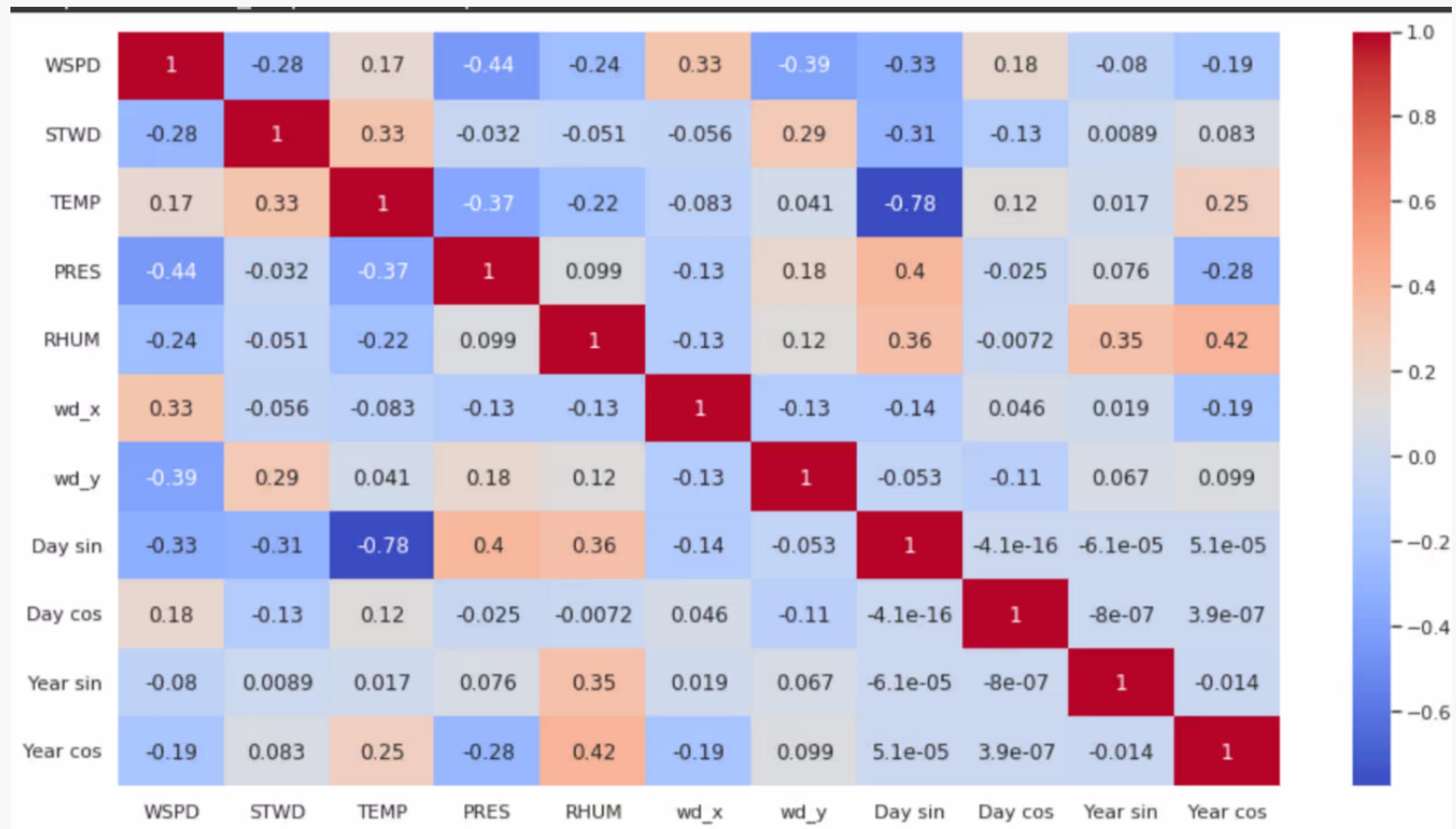
**Fecha - Dirección - Velocidad
 Temperatura - Evaporación - Presión - Humedad**



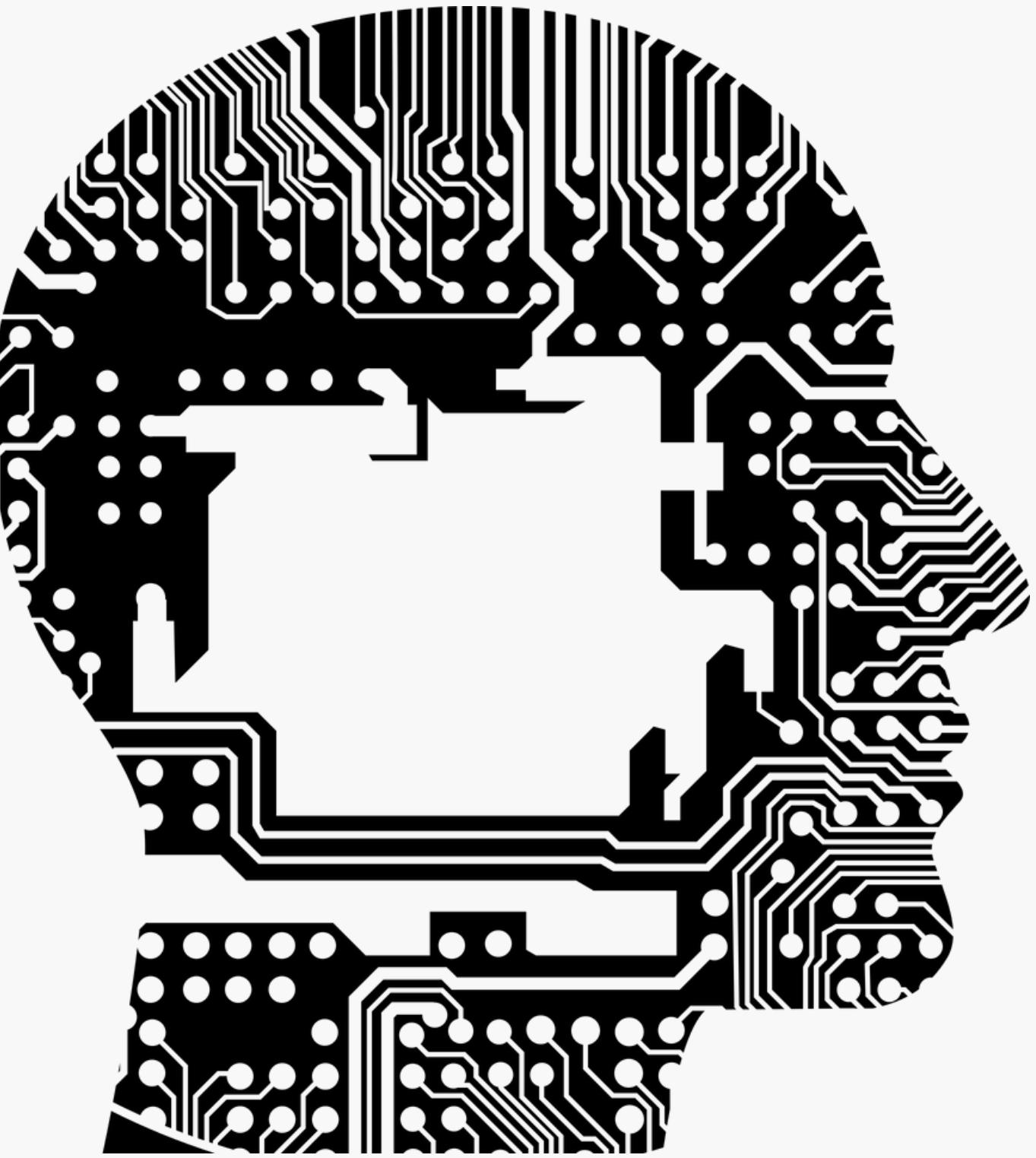
**Descomposición de la dirección y el
viento en coordenadas X eY**



Análisis de data

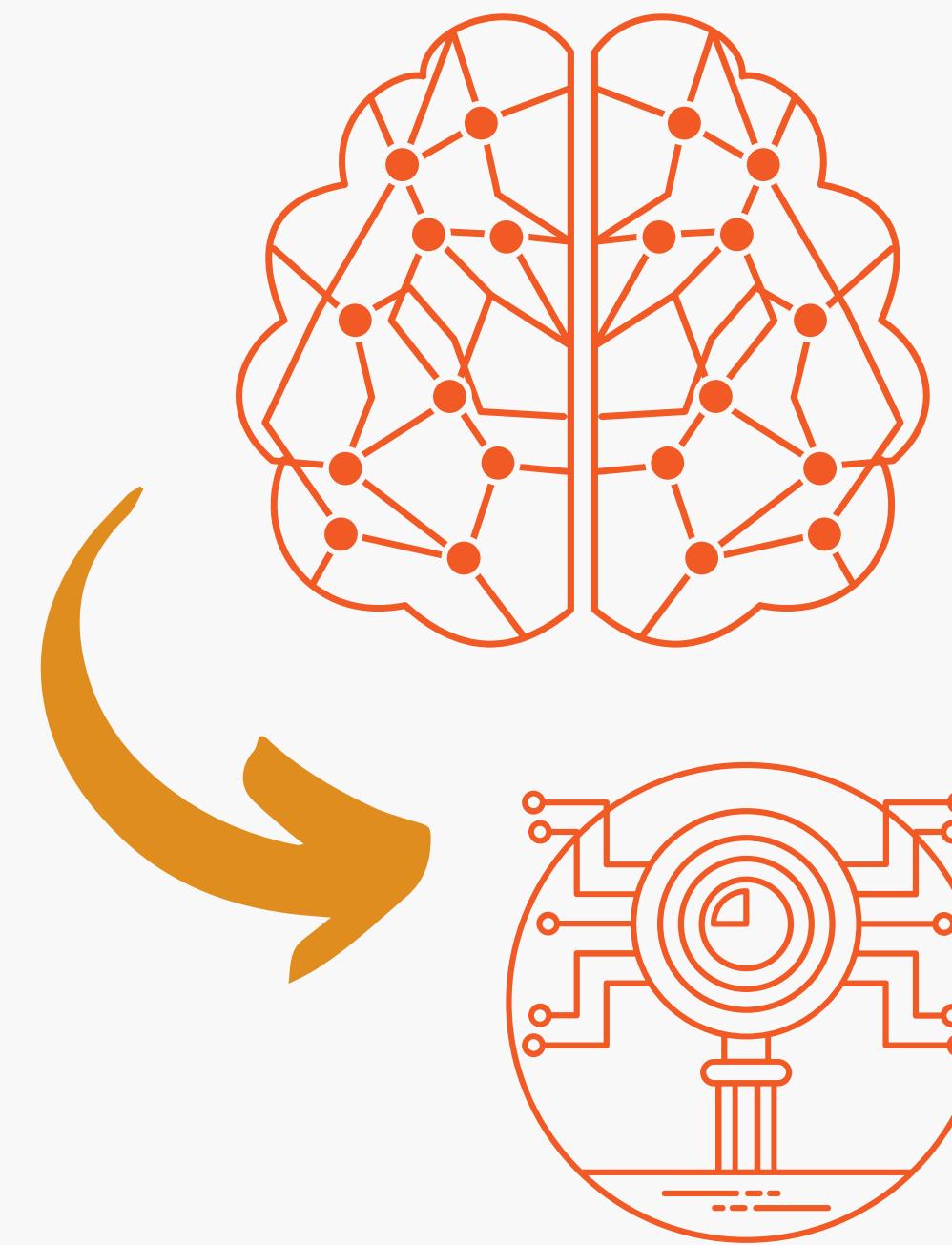
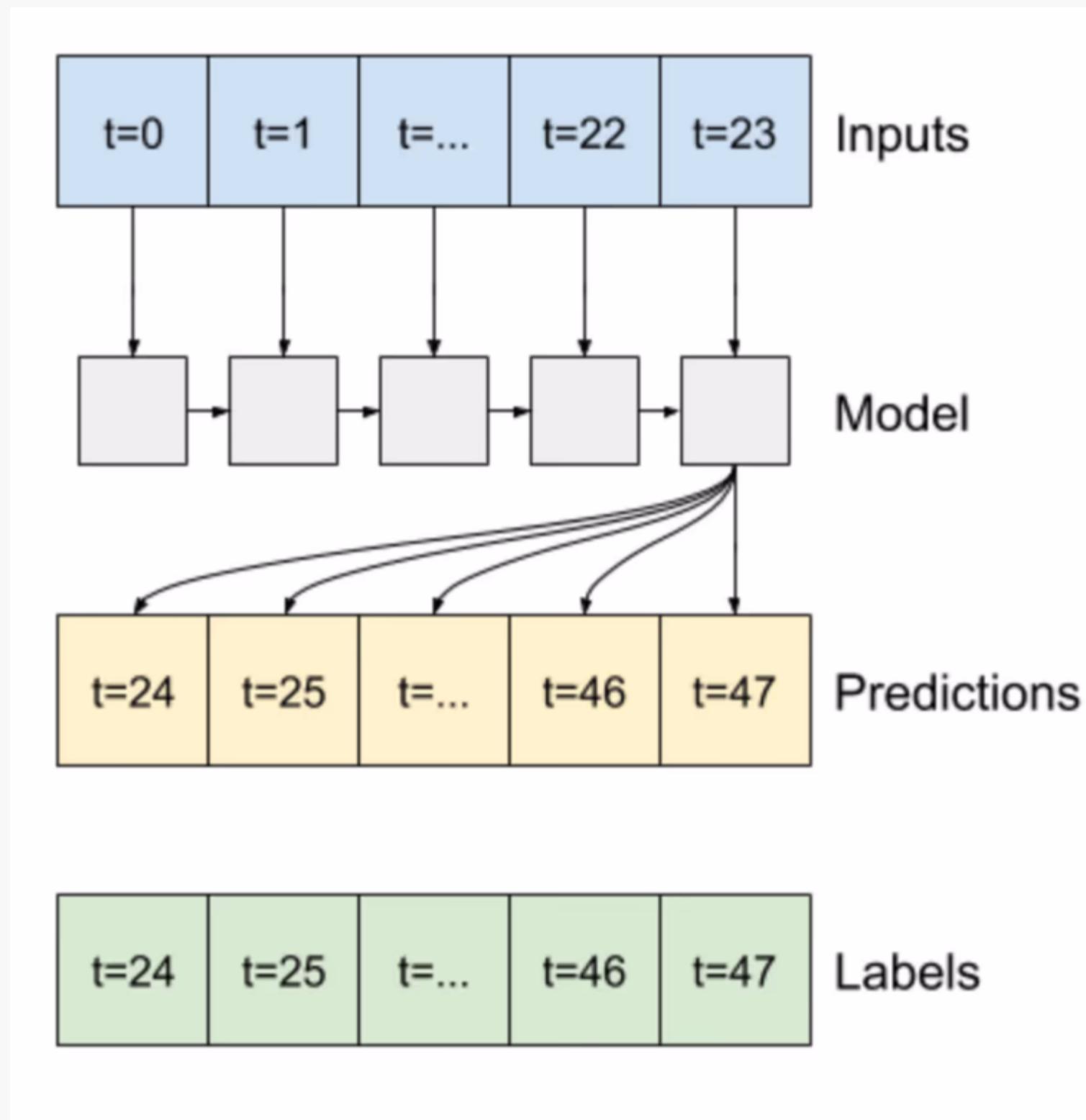


modelo



LSTM

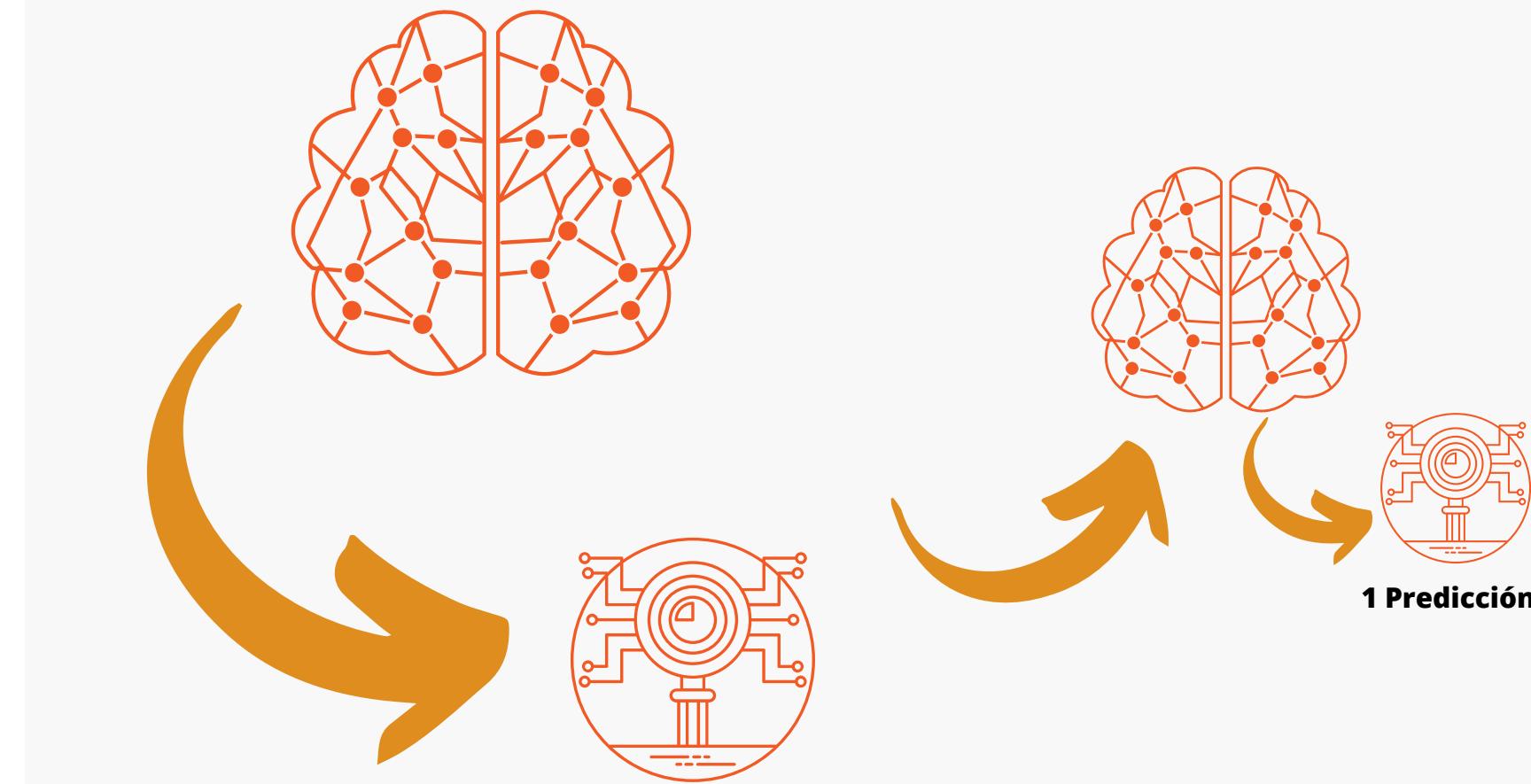
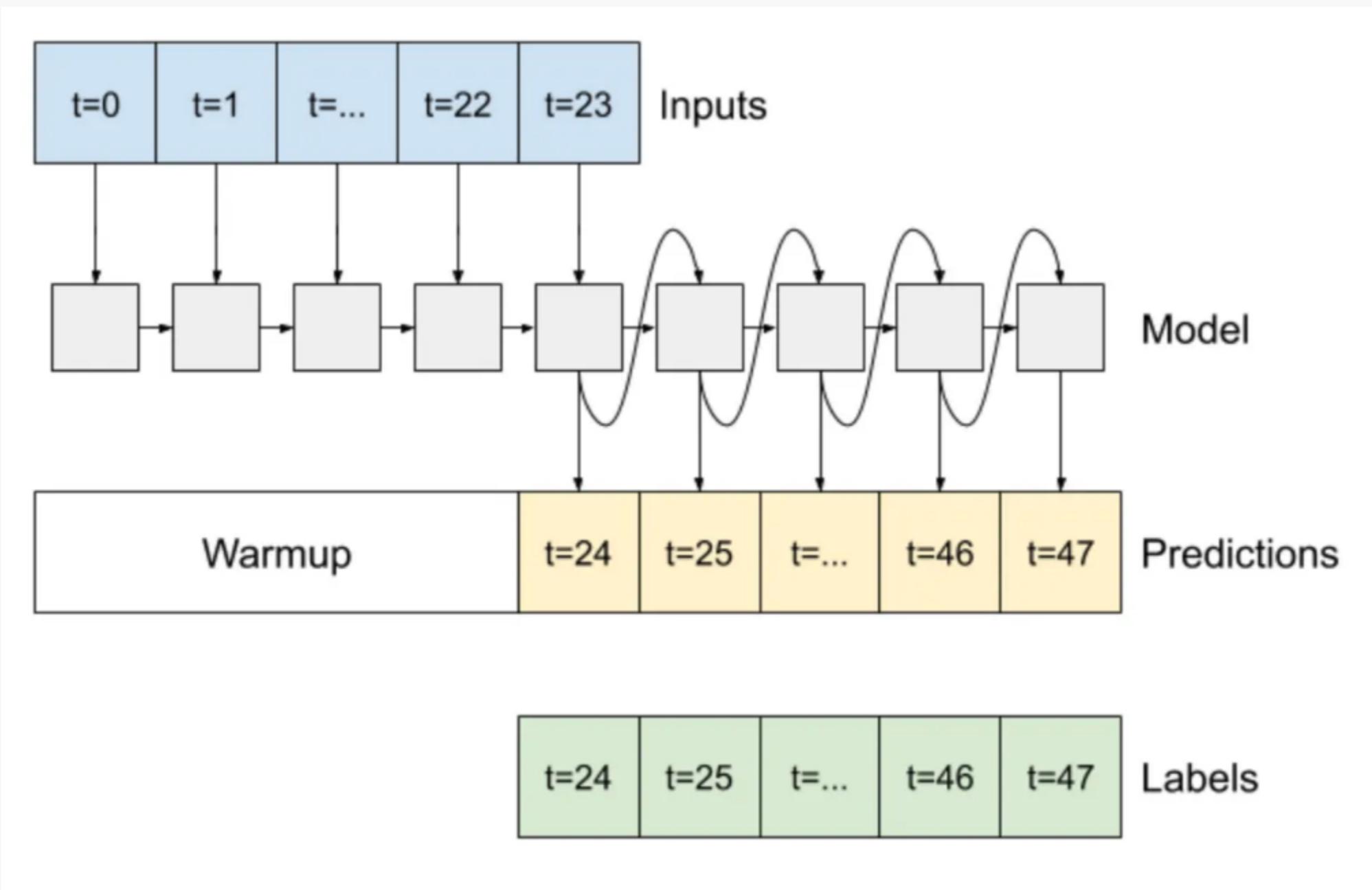
288 muestras



72 predicciones

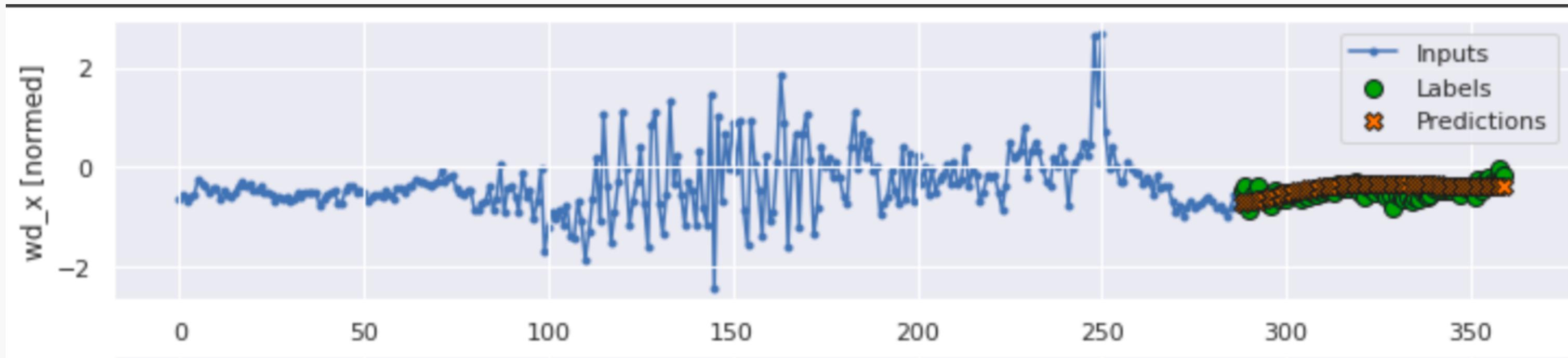
LSTM AR

288 muestras

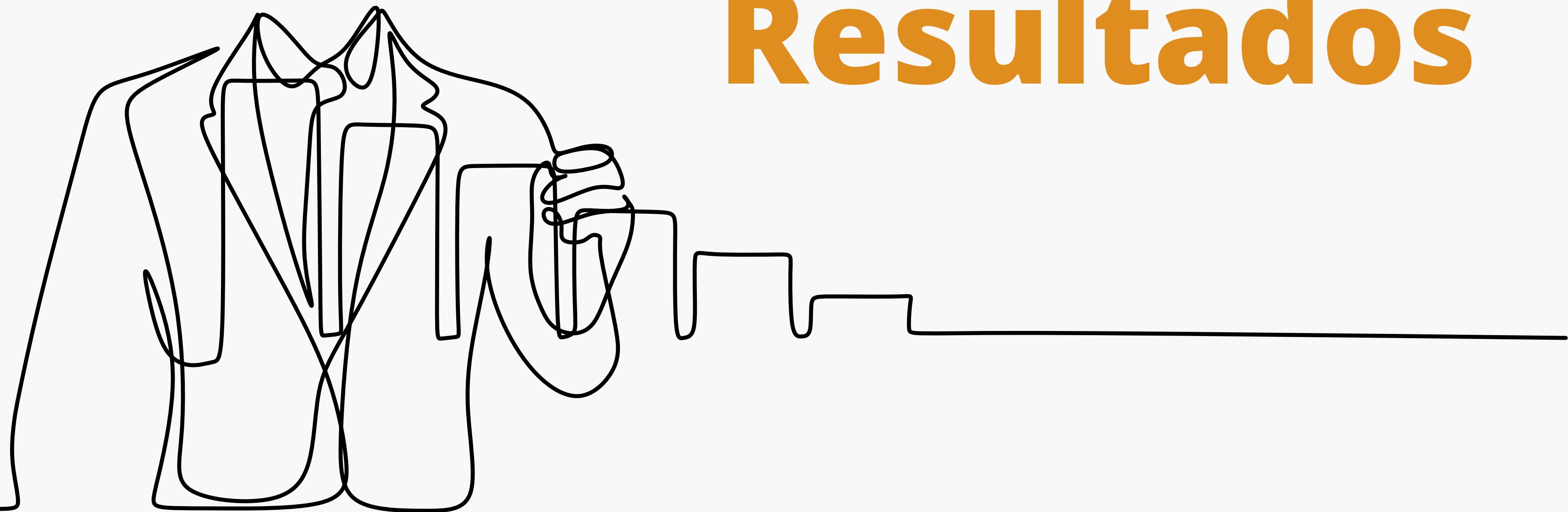


1 Predicción

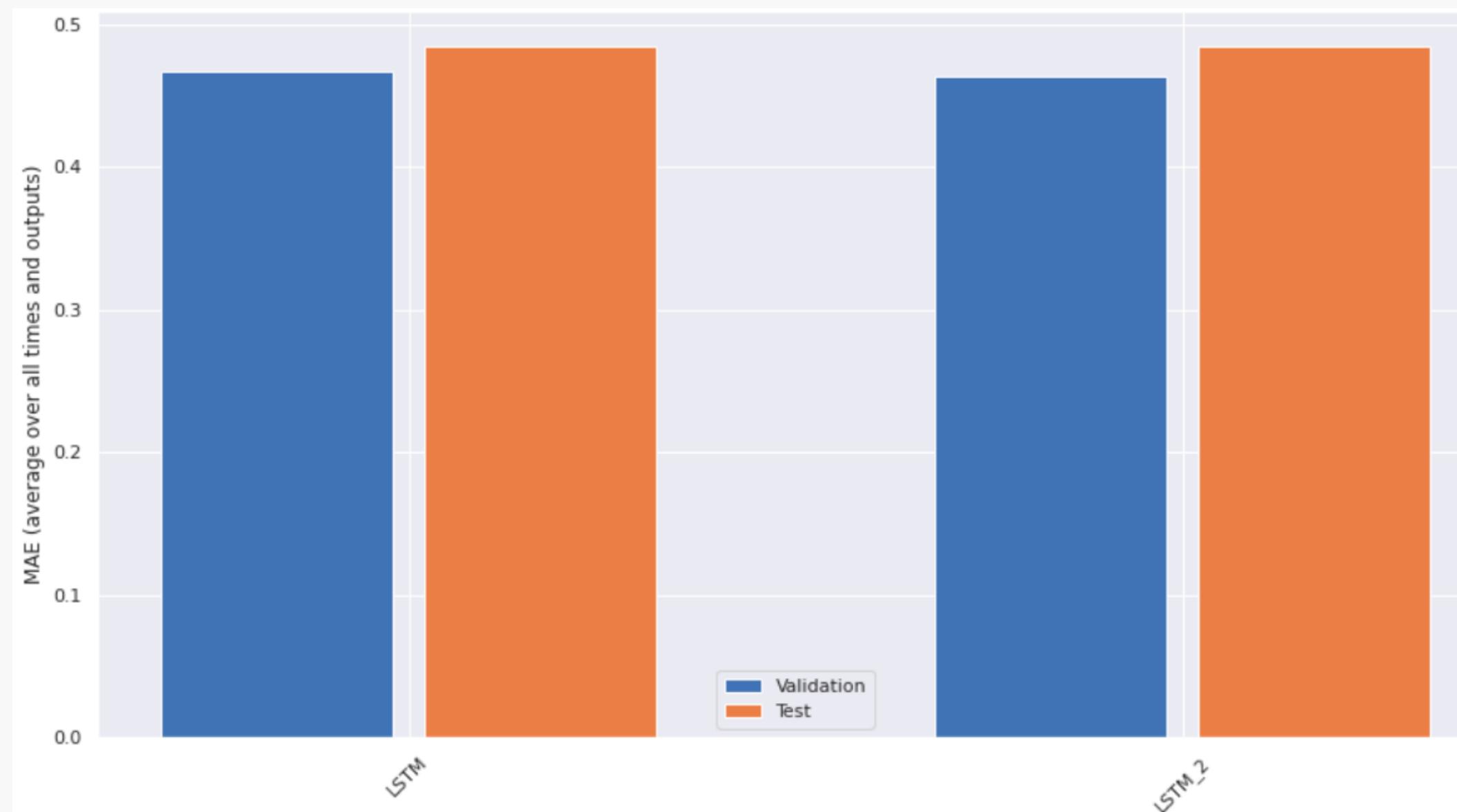
La ventana de predicciones



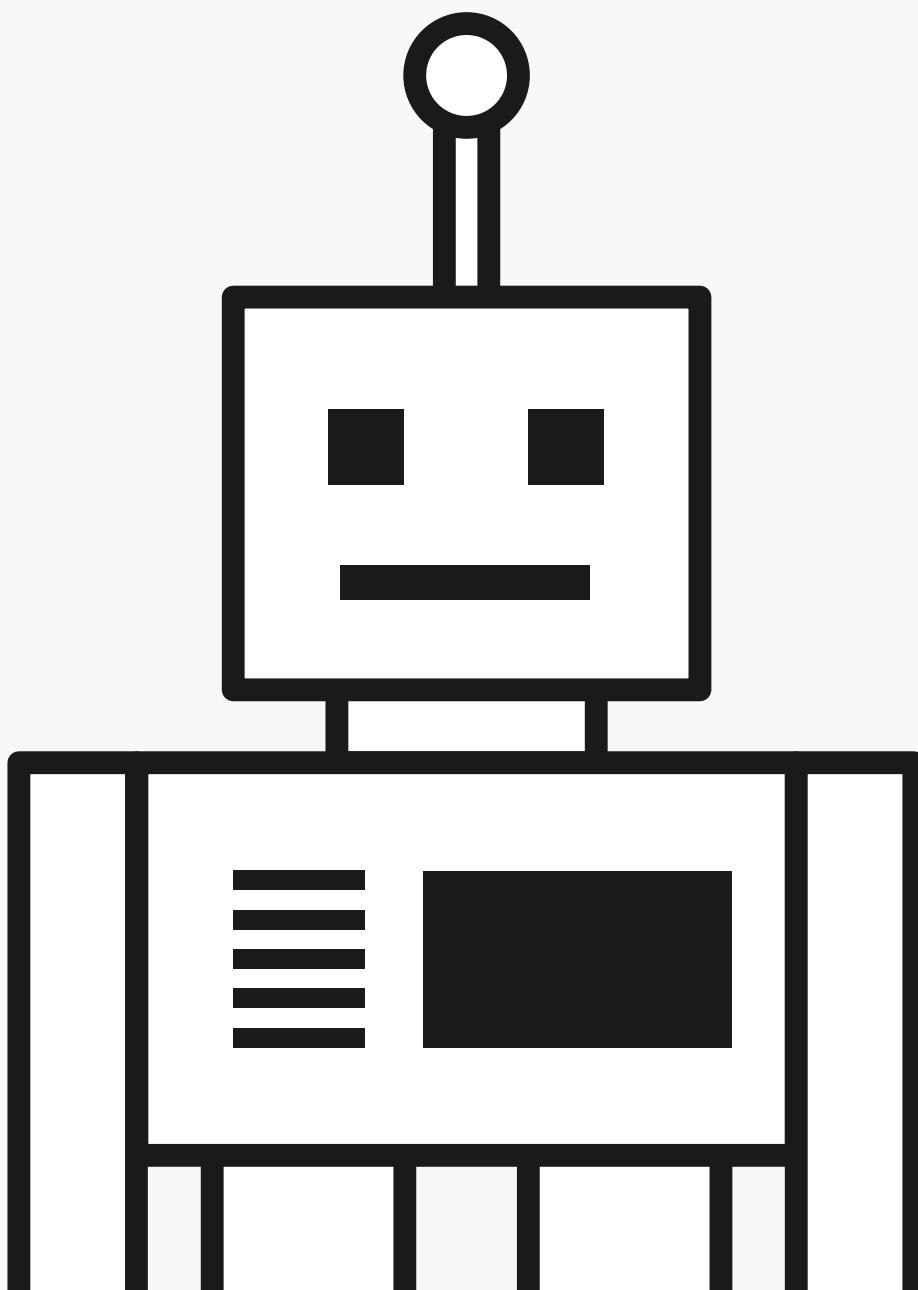
Resultados



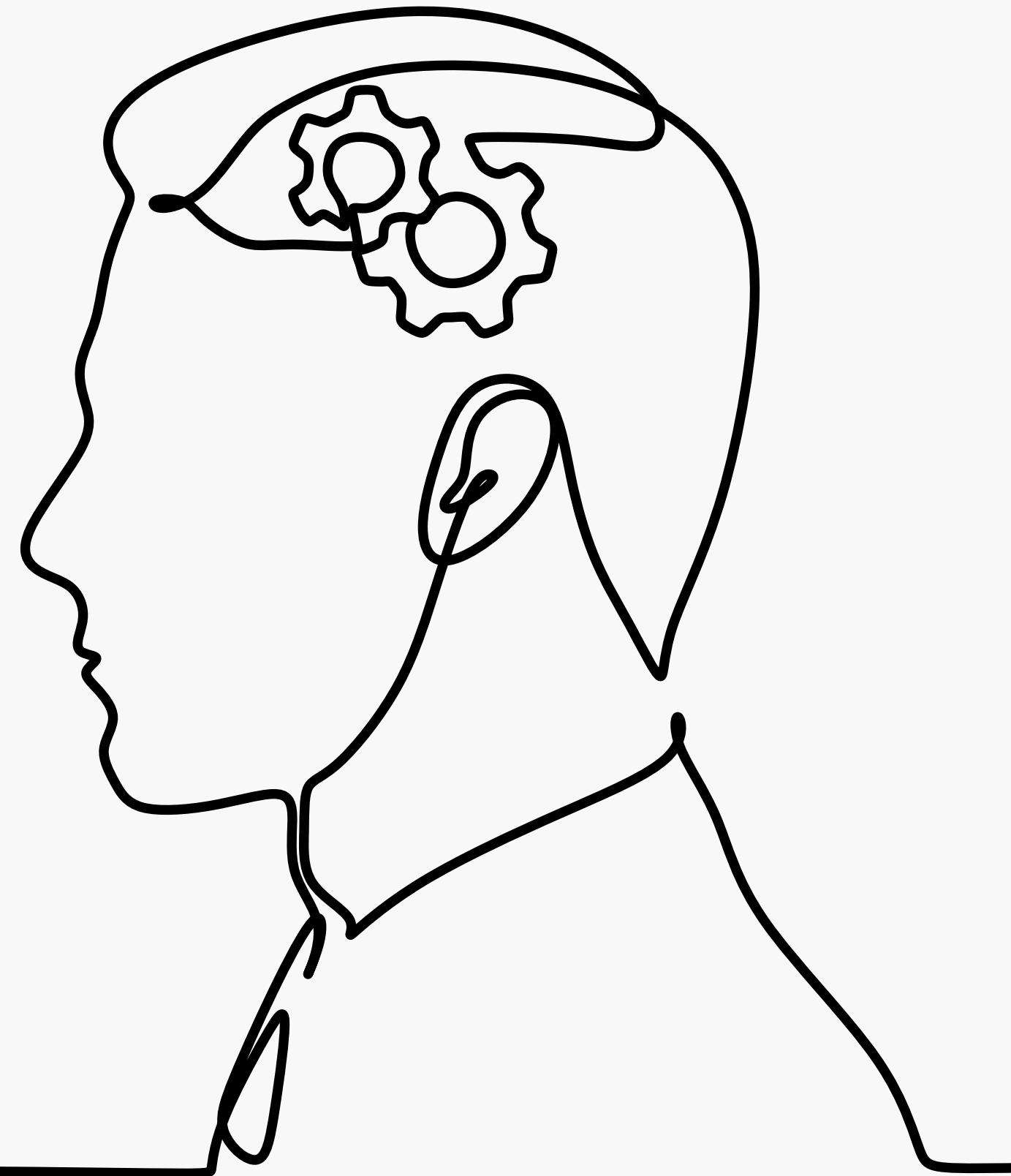
Comportamiento de Predicciones y validación



La App

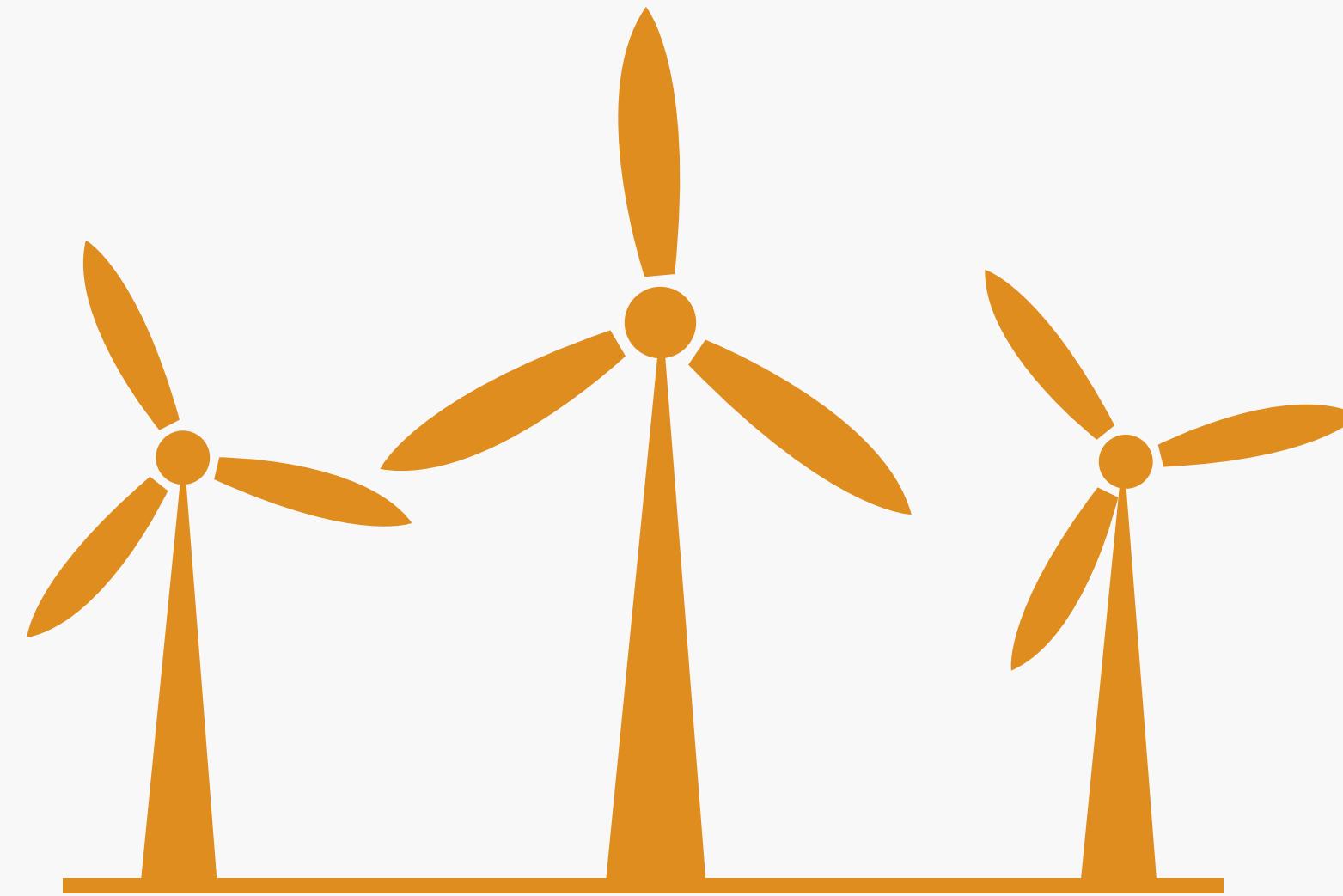


**La herramienta permitirá
tomar **mejores decisiones**
sobre los períodos de
funcionamiento de la
mina**

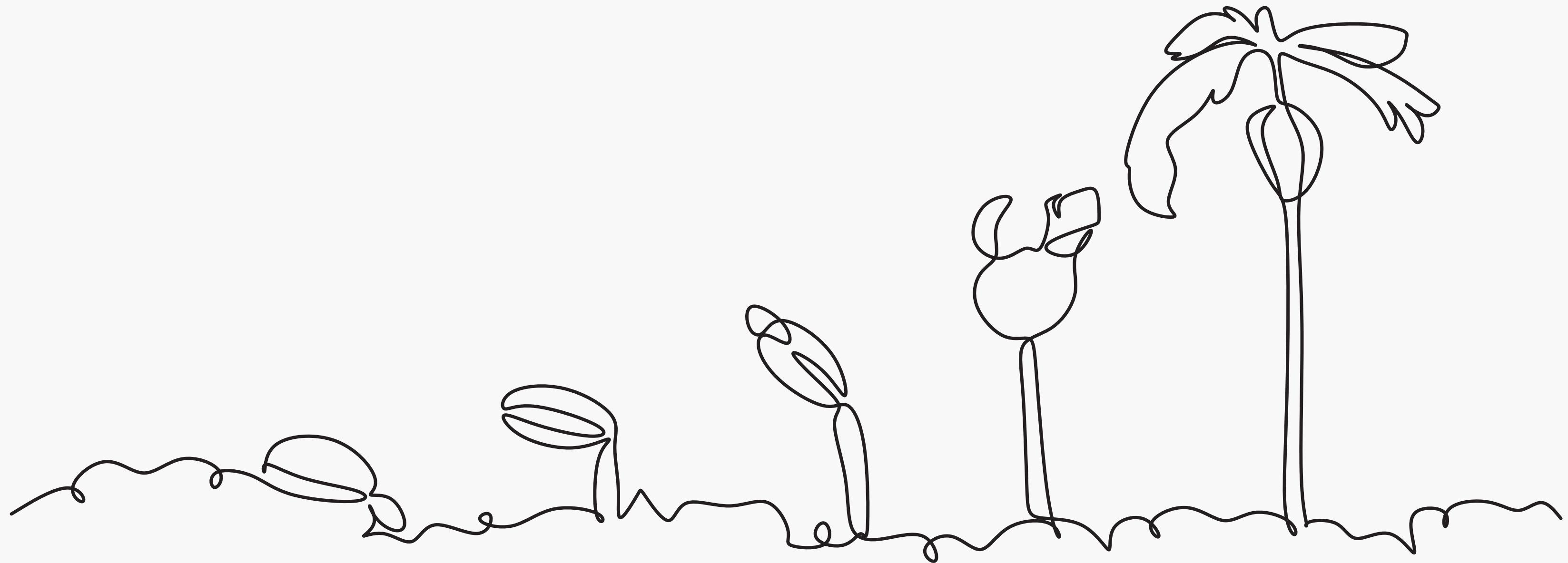




**Mejorando así la
calidad de vida de los
habitantes de la
localidad**

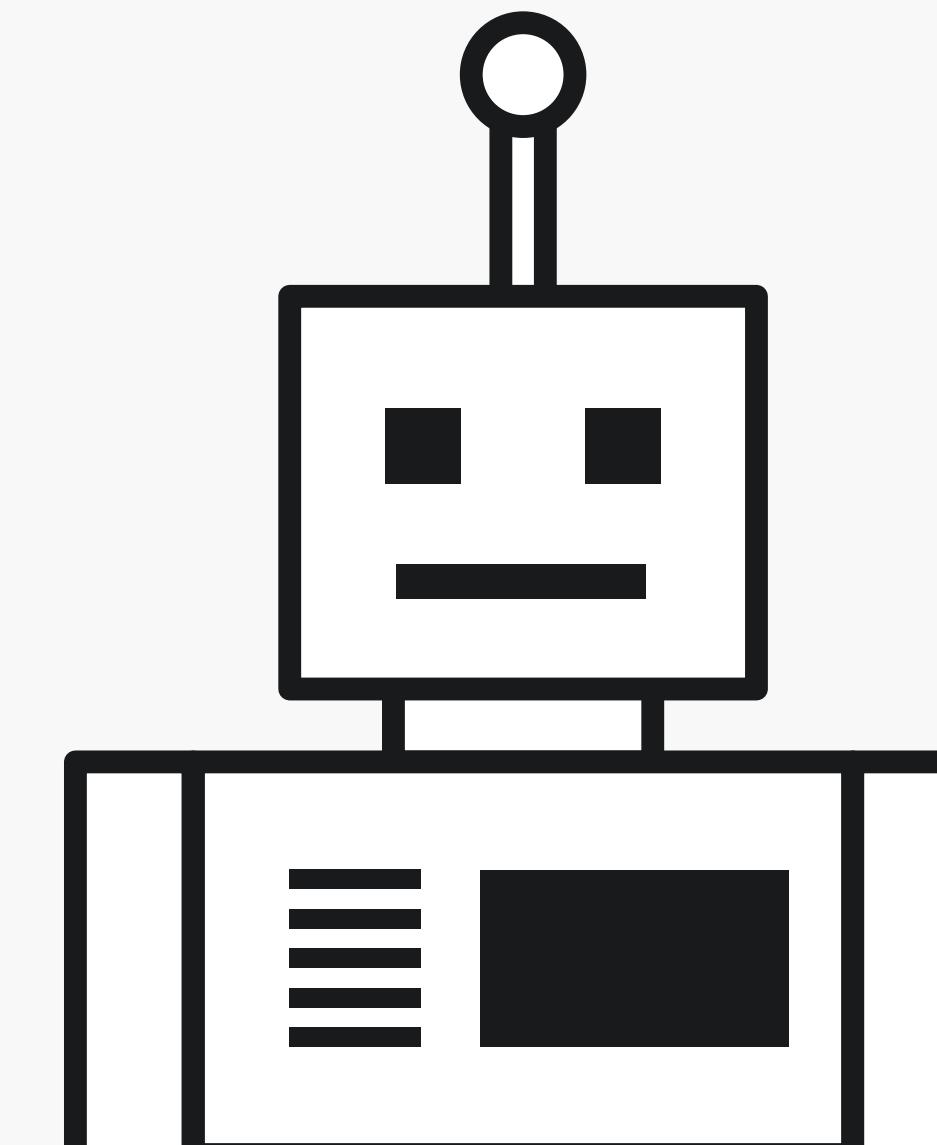
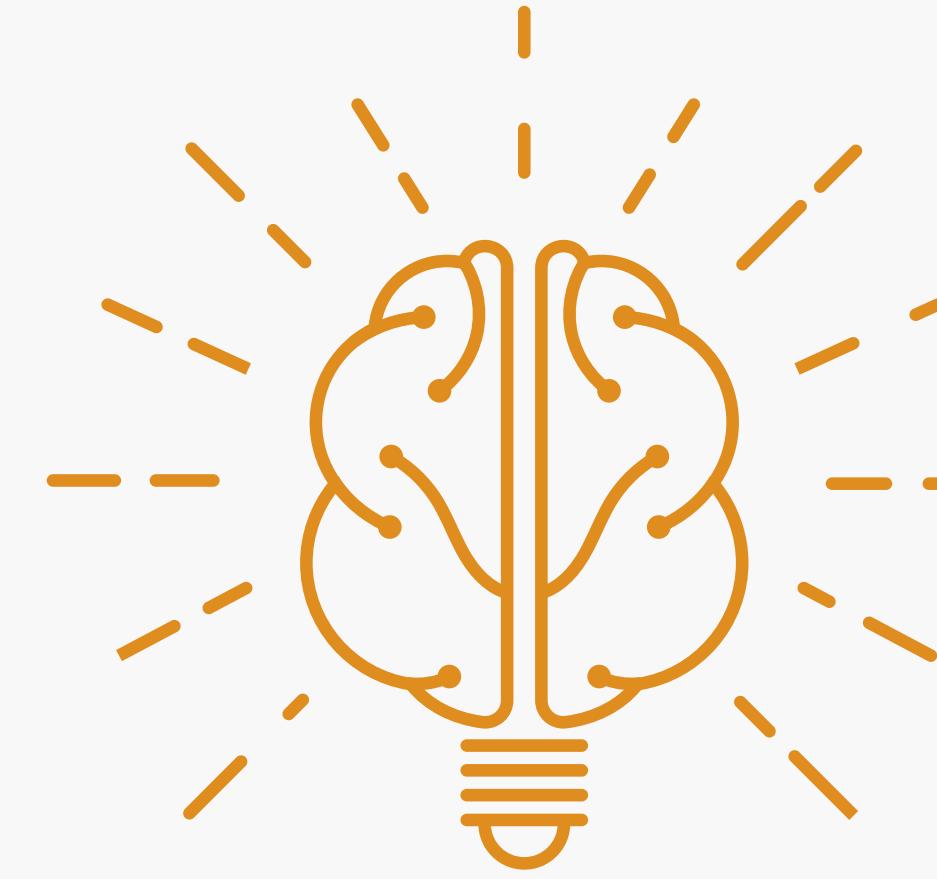


**Otra aplicación directa es en el uso de
parques eólicos**



**WindFlow es la semilla inicial para una mejor
planificación de operaciones**

**Muchas
Gracias**



¿Preguntas?