In Germany more than 40 weather based forecasting models have been developed for plant diseases and pest attacks and established in practical use (www.isip.de) to provide the best control of pesticide treatments for agriculture and horticulture by ZEPP. The most needed parameters to calculate these forecasting models are temperature, relative humidity and precipitation. Depending on the location of the next met. station, parameters have different values between the met. station and surrounding the field in a distance of 20 miles. ZEPP developed a method to interpolate met. data with GIS to get optimised input parameters for the forecasting model to present the situation in the field. The introduction of GIS gives a big advance in crop protection which is shown on this poster.

**temperature and relative humidity**
- net. data (current & forecast)
- dem
- geographic coordinates

**spatial input data**
- interpolation with multiple regression
- interpolation results
- radar precipitation data
- combine all measurements to regional map for one hour precipitation

**spatial input data**
- precipitation measurement as joint of met. station and radar data

**warning service**
- field-specific input data
- control, plant diseases, crop rotation, etc.

**risk map presentation**
- pest and disease prognosis models
- presented as risk map

**management of spatial data and GIS based prognosis**
- currently 570 met. stations
- virtual weather database
- net. of virtual met. stations (1km²)
- ca. 360,000 virtual stations for Germany
- ca. 200,000 for arable area
- example map
  - without GIS: 3 met. station
  - with GIS: 1367 virtual met. stations

**workflow**

**presentation of prognosis results**
- optional integration of user data
- upload files as GML
- plot specific forecast runs for selected fields