

Extreme weather events



Extreme weather Events



- Frost
- Hail
- Snow
- Floods
- Gale winds
- Drought's
- Sharav (very hot & dry conditions)
- Sand storms

Hail

- Since hail fall may cause considerable damage to agricultural crops & buildings it is necessary to examine synoptic conditions in which it occurs:
 - Pronounced hydrostatic instability.
 - Sufficient moisture in the lower troposphere.
 - A not to strong vertical wind shear.
 - Zero isotherm must not be too high so they don't melt before they fall
- Hail in Israel mainly between Dec-March.
- Oct-Nov & April-May- hail is rarer but falls with greater intensity !!!
- **Hail is a very local & sporadic phenomena.**















Snow

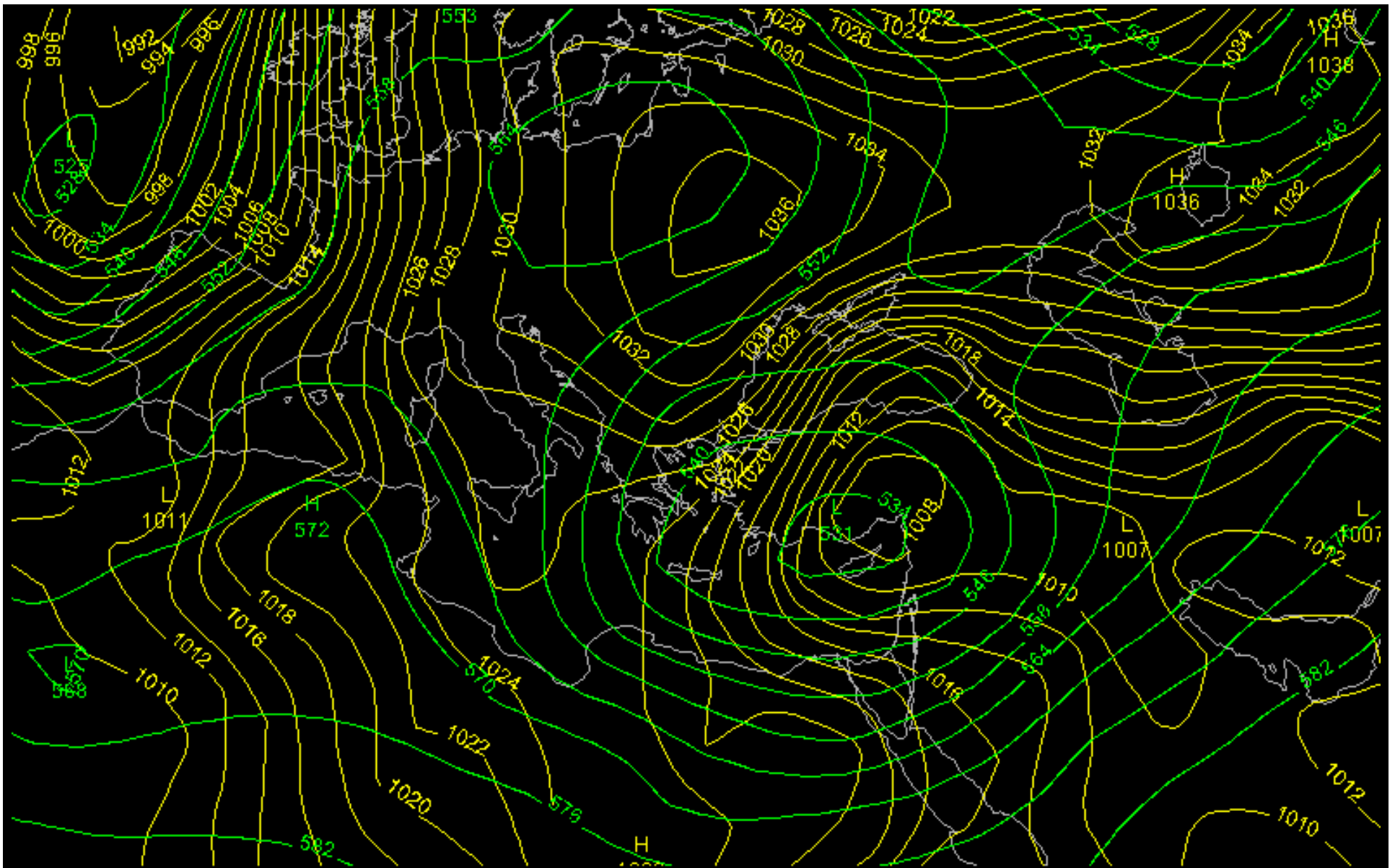
- Snow crystals are formed within the atmosphere at temp' below freezing. This forms due to condensation of water vapor on a very small ice crystal or dust particle. This condensation does not hit the liquid stage- goes directly from water vapor to ice- sublimation.

Snow crystals are almost perfectly symmetric and have a hexagonal shape (six sides).

Snow in Israel

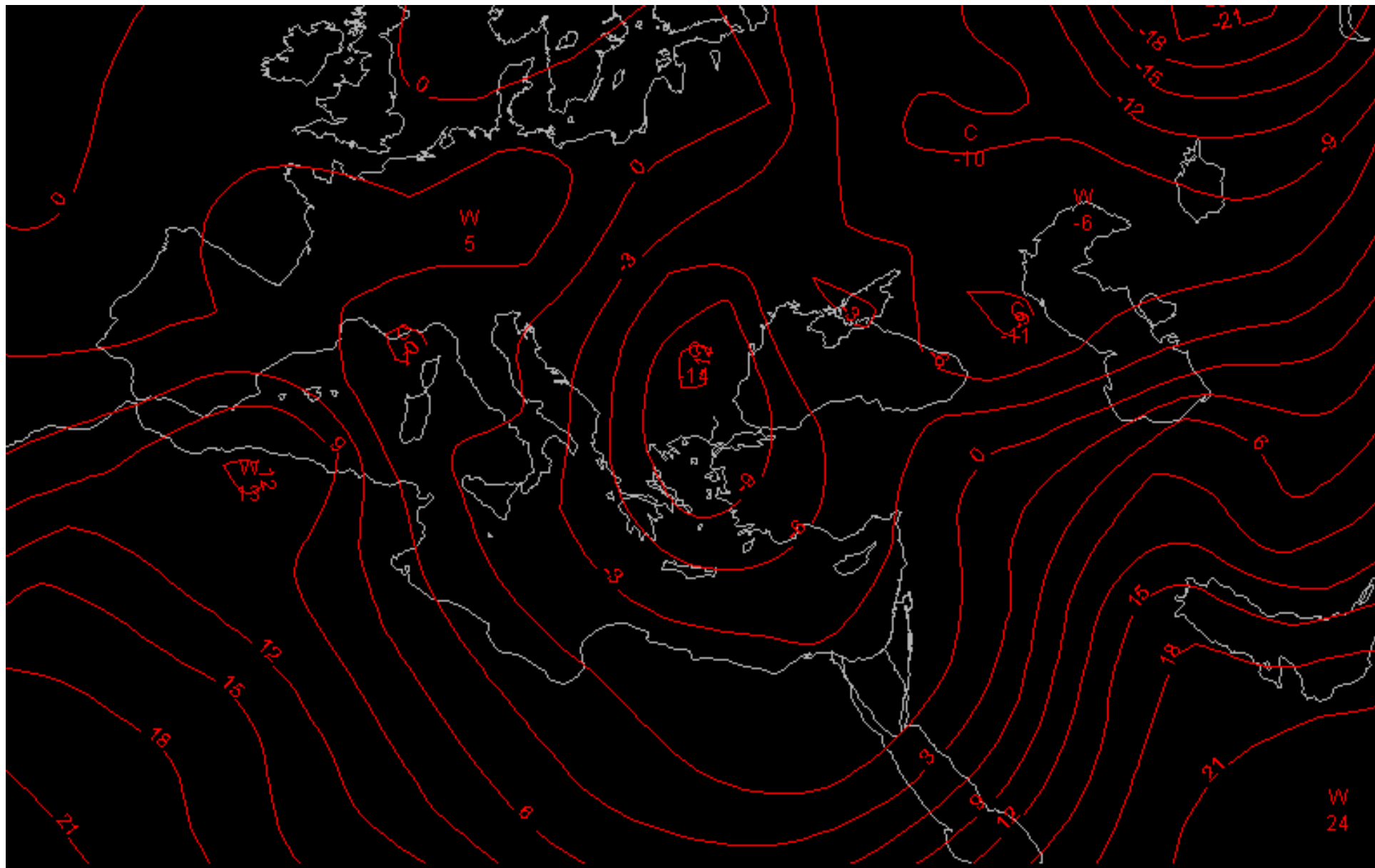


- Snow duration- Dec-March. Occasional snow events Nov & April.
- Heavy snow annually only over Mt Hermon (2000 m').
- Accumulation of snow can damage orchards and cause greenhouses to collapse.
- Main worry- Extreme cold front causing snow fall over lower regions (Galilee, Golan & Jerusalem area (Judea & Sameria)).



IG PP Surface Actual 25/02 2003 00Z

IG HH 500 mb. Actual 25/02 2003 00Z



IG TT 850 mb. Actual 25/02 2003 00Z







Floods



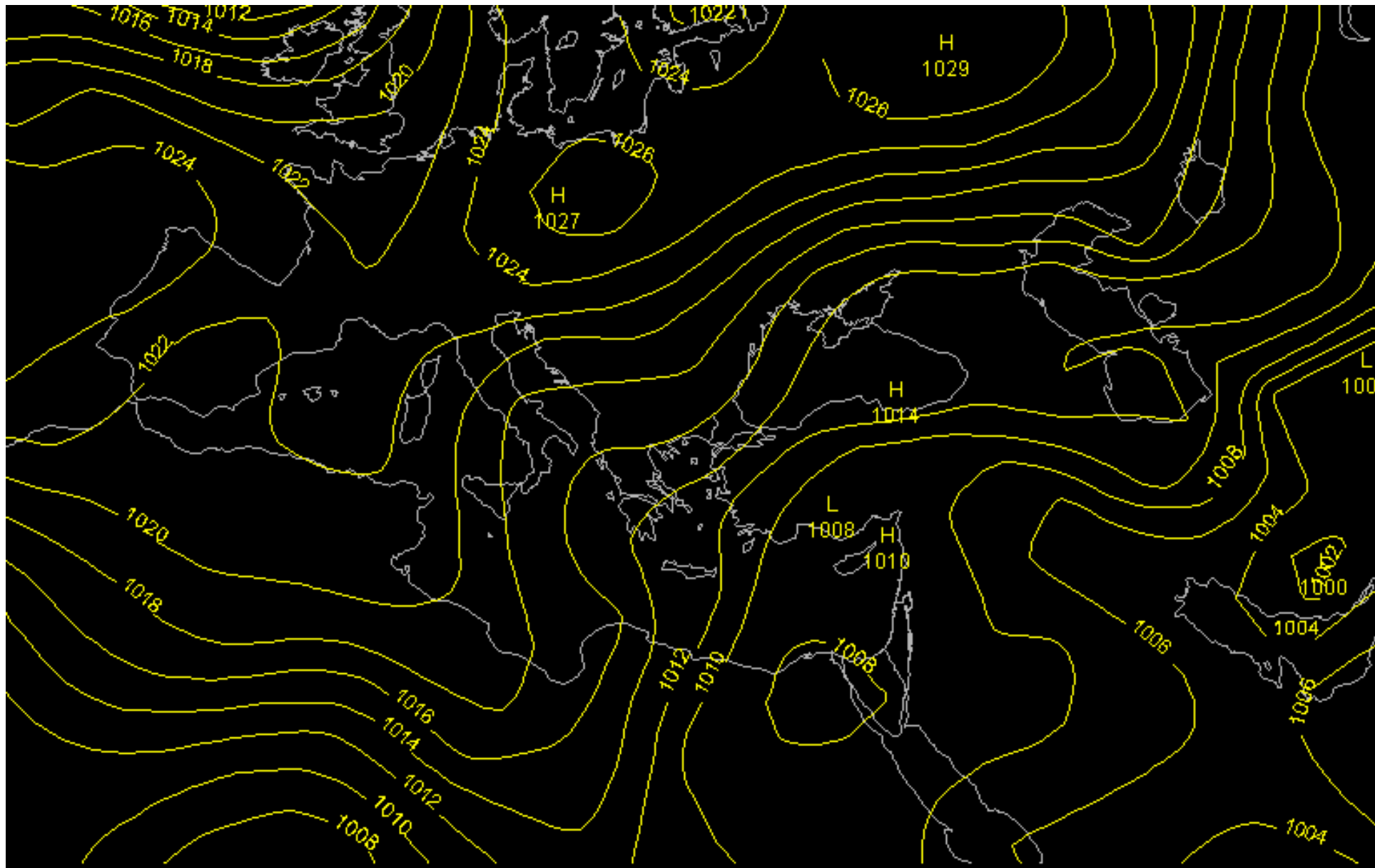
- Precipitation quantity.
- Rain intensity.
- Type of soil/ground.
- Soil moisture.
- Land use.
- Size of watershed area.
- Location of watershed.



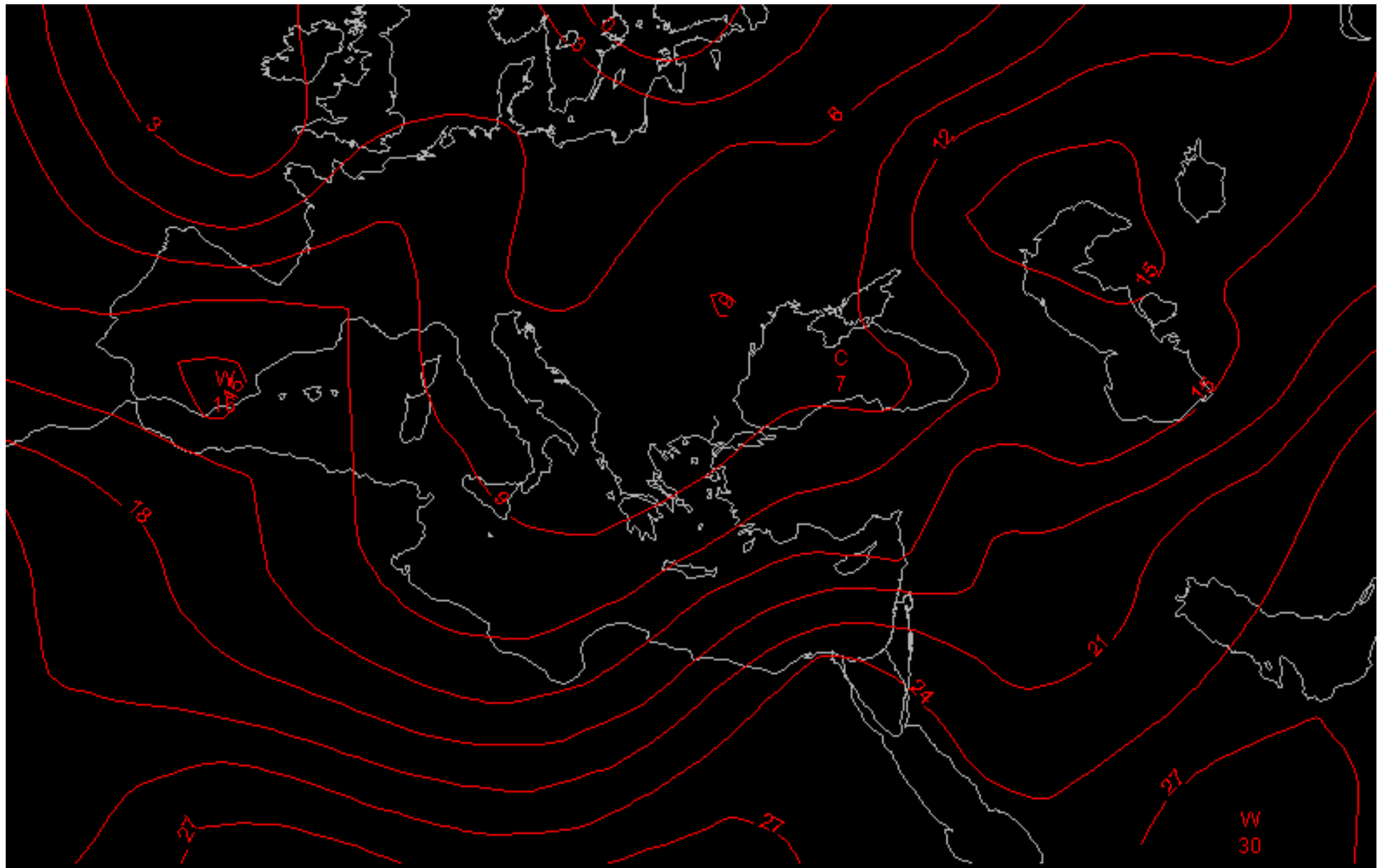


Sharav- very hot and dry conditions

- Sharav- Temp' above 33° & Rh lower than 20%.
- Light sharav- Temp' max' 33° - 35.9° .
- Medium sharav- Temp' max' 36° - 38.9° .
- Severe sharav conditions - Temp' max' above 39° .
- Duration:
 - March-June. (spring)
 - October-November. (to a lesser extent)
 - July-september. (summer- only inland and in the hills)



IG PP Surface Actual 30/05 2004 00Z



IG TT 850 mb. Actual 30/05 2004 00Z

Methods used to protect crops during sharav events

- Greenhouses:
 - Air conditioning or ventilation.
 - Using Wet mattresses to achieve optimum rh 60%-80%.
 - Irrigation- using sprinklers.
 - Shading- using nets, paint or thermal screens.
- Open fields:
 - The most efficient method is to follow the agricultural forecast and saturate fields before sharav events occur.

Gale winds



- Gale warning – wind speed above 28 knots.
- Duration- October-may:
 - Western component- Low pressure systems approaching the east Med from Europe.
 - Eastern component- High pressure systems from the north east accompanied by a red sea trough from the south. Eastern gale winds are more frequent in the northern regions of the country.
- June-September- No gale winds.

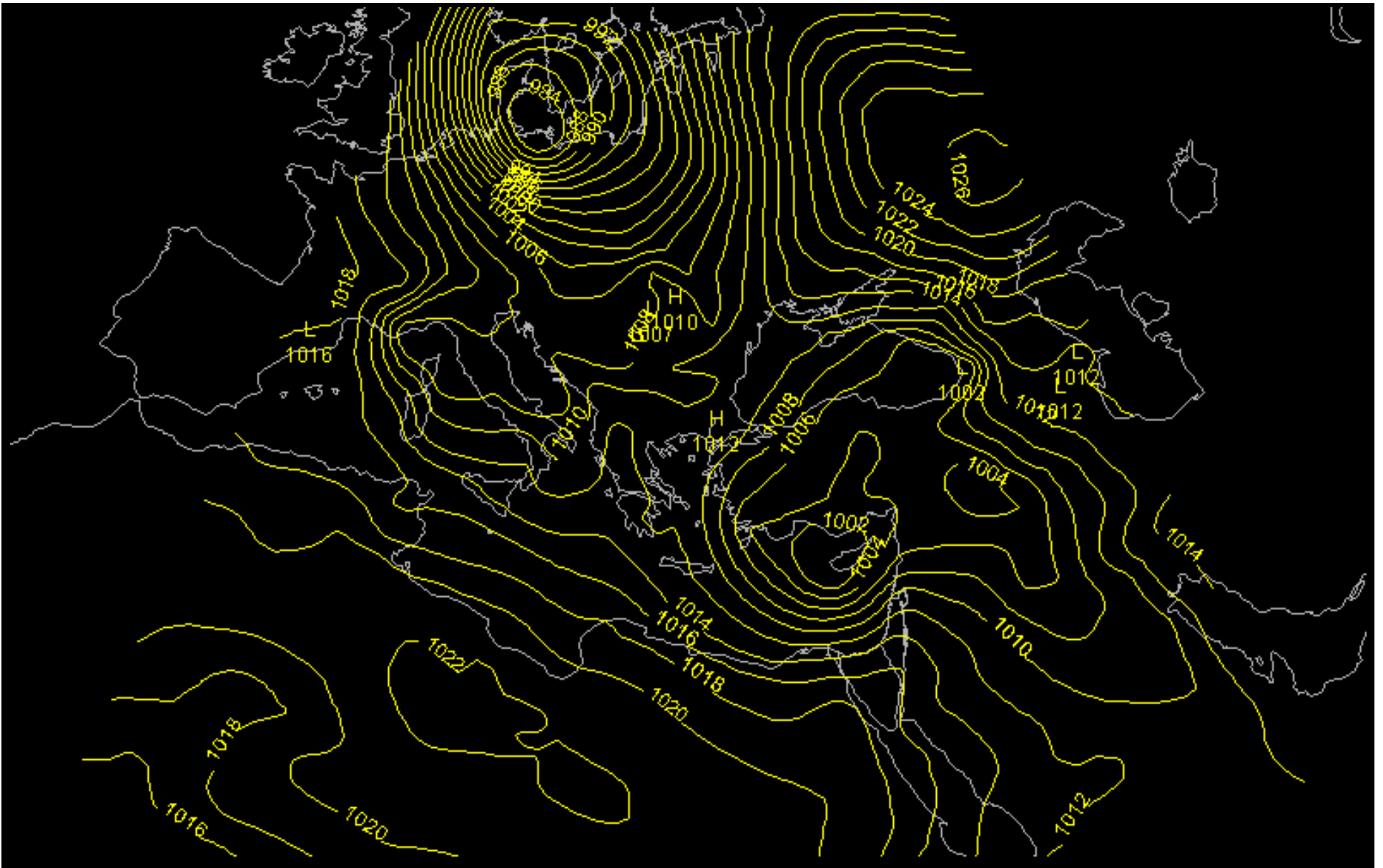
Droughts in Israel

- Drought in Israel- No official definition.
- Agricultural drought- Damages to the quality & quantity of crops due to a bad distribution of rain.
- Israel's drought line- South of 200 m"m isoyhet (lines of equal precipitation).
- World desert belt- 30° latitude.
- Israel – 32° N.
 - Israel is located just north of the world desert belt and therefore is vulnerable to droughts every couple of years.
- Agriculture in Israel must become established upon water conserving methods !!!

Sand & dust storms



- Duration- October-May.
- Low pressure systems causing a strong eastern flow over the east Mediterranean.
- The most severe storms are caused by strong S.W winds carrying dust from north Africa to Israel.
- Sand storms are frequent in the arid Negev region.
- Protection- Greenhouses, nets and wind breakers.



BH PP Surface +48H 07/02 2006 00Z



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